This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

THIS PAGE BLANK (USPTO)

U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office

	Requestor's Name:		,		Serial Number:		•	· ·
	Date:		Phone:	-		Art Unit:		
1 1	Search Topic: Please write a detailed sta terms that may have a spe please attach a copy of the	cial meaning. Giv	e examples of	relevent citat	ions, authors, k	eywords, etc., if kn	own. For sequences	s,
a .		· .	;				đ	
		<i>.</i>	š		*			,
				•		· · · · · · · · · · · · · · · · · · ·		
		* * * * * * * * * * * * * * * * * * *			•			
			4 - 4 -					
			- ;					
		¥						
		1			1			
•								
•								
ş Çeni		-t **			د معالیمیدار کا	en e		,
í		A sal da	G. M. Mill. G. M. Mill. G. M.					
					•			
								•
	•		:				•	
			. :		<i>:</i>			
		* * * * * * * * * * * * * * * * * * * *		•	21			
٠			5		•		•	
			₹ * ,				9.5	
						*. *	•	•
-::-		···					- · ·	
			STA	FF USE C	NLY			. Parago
3	Date completed: 08	・クス-0つ		Search S		Vend	lore	
	Searcher: Bever		<u> </u>		STIC	· · · · · · · · · · · · · · · · · · ·	IG	
	Terminal time:	20	_		CM-1		STN	
	Elapsed time:		- : - :	Type of S	re-S Search	· · · · · · · · · · · · · · · · · · ·	Dialog APS	
		6	_		N.A. Sequence		APS Geninfo	
			- · ·	•	A.A. Sequence	·	SDC	
٠.	Number of Searches:		_ · :	· <u></u>	*	• —	DARC/Questel	•

المستدر بالد

PTO-1590 (9-90)

THIS PAGE BLANK (USPTO)

Sequence of the po Peptide encoded by Polypeptide encode HCV NS4B protein. Open reading frame HCV antigen C100.

AAR23999 AAR90933

AAP90182 AAP92048 AAP90141

C terminus of supe Sequence of the ca Protein sequence o

```
( m/2 ) x
                                        (without alignments)
5.562 Million cell updates/sec
                                  August 23, 2002, 10:01:00 ; Search time 179.72 Seconds
    GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                          747574 segs, 111073796 residues
                                                                                                                                   Maximum Match 100%
Listing first 45 summaries
                         OM protein - protein search, using sw model
                                                                           BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                              A_Geneseq_032802:*
1: /grm:'
                                                                                                               seq length: 0 seq length: 2000000000
                                                     US-08-854-825-34
40
                                                                                                                              Post-processing: Minimum Match 0%
                                                                 1 SLMAFTAAV 9
                                                       litle:
Perfect score:
                                                                           Scoring table:
                                                                                                               88
                                                                                                                                                    ..
                                                                 Sequence:
                                                                                          Searched:
                                                                                                              Minimum I
Maximum I
                                                                                                                                                    Database
                                   Run on:
```

AAR33566 AAB69024

AAR33638

AAR21571 AAR33580 **AAR33600** AAB51378 **AAR21572** AAR33639 AAR33581

AAR33565 AAB69023

Polypeptide encode
HCV recombinant an
CKS-HCV antigen fu
HCV recombinant an
CKS-HCV antigen fu
HCV CCCOMBINIT an
HCV CLOODI recombi
HCV CCCOMBINANT an
HCV CKS-CLOODI recombi
HCV CKS-CLOODI recombi
HCV CKS-SIABCD recombi
HCV CCCOMBINANT an
HCV CCCAS-33-BCD Fus
HCV CKS-33-BCD Fus

AAR33601 AAB51379

AAR33567 **AAB**69025

21111111212121444 21111111212444432

AAR84575 standard; peptide; 9 AAR84575 RESULT

¥.

Cytotoxic T-cell epitope, as 1789-1797 of HCV-1 NS4 region. 25-APR-1996 AAR84575;

Hepatitis C virus; HCV; epitope; vaccine; immunogen Hepatitis C virus. WO9525122-A1 21-SEP-1995

95WO-US03224. 94US-0214650. (SCRI) SCRIPPS RES INST. Serny A, Chisari FV; 16-MAR-1995; 17-MAR-1994; THOUSE STATE OF THE STATE OF TH

to Novel molecule comprising a cytotoxic ${\tt T}$ cell epitope - used vaccinate against hepatitis C viral infection WPI; 1995-336941/43.

Claim 1; Page 69; 85pp; English

AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides

ALIGNMENTS

AAR33574 AAR33594 AAR52690

AAR21565 AAR22208

AAR33632

1: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1980.DAT:*
2: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
3: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
4: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
5: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
6: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
7: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
8: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1980.DAT:*
8: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1980.DAT:*
9: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1990.DAT:*
110: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1990.DAT:*
111: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1990.DAT:*
112: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
113: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
114: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
115: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
116: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
117: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
118: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
119: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
120: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
121: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
122: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
123: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
124: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
125: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
126: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
127: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
128: /SIDS1/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:* 111: 12: 13: 14: 15: 15: 17: 19: 20: ::

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Sequence of hepati Sequence of the po Polypeptide p1689 P1689 HCV antigen Sequence of hepati Cytotoxic T-cell e
HCV1 NS4 peptide (
T cell epitope/MHC
HLA Class I motif
HCV antigen, NS4 I Description SUMMARIES AAY10234 AAY10512 AAB82061 AAB82060 AAP90136 AAP92019 AAR33872 AAR13354 AAP90135 AAR84575 AAW39561 ΩI 110 122 123 100 110 110 110 Length DB Query Match 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 000000000000 Score . 9 Result

~

ö

ö

Indels

6.4e+05; hes 0;

Mismatches

.; 0

9; Conservative

Pred. No.

100.08;

 $SSSSS \times S$

g ô

```
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                3
                                                                                          g
                                                                                                                                                                                                                        ò
                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptides AAW39430-W39734 are used in a novel method for the selection of immunogenic T-cell peptide epitopes present in polypeptide antigens. The method involves the identification of peptide sequences capable of binding to an HLA (human leukocyte antigen) class I molecule and measuring the binding of this epitope peptide to the HLA class I peptide. The stability of binding of the peptide and MHC (major histocompatability complex) class I molecule is measured on intact human be used to select peptide epitopes for generating vaccines against a disease associated with the polypeptide, e.g. cancers or AIDS. The peptide epitopes are especially T-cell peptide epitopes with strong anti-tumour and anti-viral immune responses. Peptide AAW39561 is a conserved hepatitis C virus type I NS4 derived peptide used to determine the stability of HLA-A*0201 complexed with known CTL lymphocytes.
from the core, E1, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptide specific cytotoxic T-cell activity. The peptides AAR8470-77 were found to have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T cell epitope; immune response; human leukocyte antigen; HLA Class I; vaccine; immunogenic; major histocompatablilty complex; MHC; B cell; disease; anti-tumour; anti-viral.
                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                         HCV1 NS4 peptide (pos.1789-1797) capable of binding to HLA-A*0201.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Method of selecting T cell peptide epitope(s) - by measuring the stability of HLA class I-peptide complexes on intact B cells
                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Van Der Burg SH;
                                                                                                                                                Length 9;
                                                                                                                                                                                    Indels
                                                                                                                                             100.0%; Score 40; DB 16;
100.0%; Pred. No. 6.4e+05;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Toes REM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SCI SEED CAPITAL INVESTMENTS BV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kast WM, Melief CJM, Offringa R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 2; Page 66; 109pp; English.
                                                                                                                                                                                                                                                                                                                                            AAW39561 standard; peptide; 9 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96EP-0203670
96EP-0201145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97WO-NL00229
                                                                                                                                                                                                                                                                                                                                                                                                                      11-JUN-1998 (first entry)
                                                                                                                                             Ouery Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  UYLE-) RIJKSUNIV LEIDEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1997-549891/50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus.
                                                                                                                                                                                                                                       1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9 AA;
                                                                                          ¥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9741440-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-DEC-1996;
26-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                  AAW39561;
                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SCIS-)
                                                                                                                                                                                                                                                                                                                             AAW39561
```

NAME OF THE PROOF OF THE PROOF

Length 9;

100.0%; Score 40; DB 18;

Query Match

```
The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes place in the milleu of the lymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body, AMY10071 to AMY10639 represent examples of peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cytotoxic T-lymphocyte response, CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .;
o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.0%; Score 40; DB 20; Best Local Similarity 100.0%; Pred. No. 6.4e+05; Matches 9; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T cell epitope/MHC ligand SEQ ID NO:164.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 30; 199pp; English.
                                                                                                                                                                                                                                                                                    AAY10234 standard; Peptide; 9 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (CTLI-) CTL IMMUNOTHERAPIES CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US14289.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97CA-2209815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97US-0988320
                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus.
                                                        6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9 AA;
                                                           1 SLMAFTAAV
                                                                                                1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W09902183-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10-DEC-1997;
10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                               12-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kuendig TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic
                                                                                                                                                                                                                                                                                                                                                   AAY10234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D
```

ŗ

m

```
99AT-0001680.
                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 9; Conserv
                                                                                                                                      Hepatitis c virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis c virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 slmaftaav 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            infection.
                                                                                         Antigen; immunos
viral infection.
                                                                                                                                                                 WO200124822-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200124822-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-OCT-1999;
                                                                                                                                                                                                                                                            01-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22-JUN-2001
                              22-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-APR-2001
                                                                                                                                                                                               12-APR-2001
AAB82061;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB82060;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ٥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            viral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
AAB82060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal; at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal. Jymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. mallignant melanoma or infectious diseases, e.g. viral disease such as hepaticis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAX10071 to AAX10039 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                              Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 40; DB 20;
100.0%; Pred. No. 6.4e+05;
ive 0; Mismatches 0;
                                                                                                                                                  HLA Class I motif peptide SEQ ID NO:442.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; Page 44; 199pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB82061 standard; peptide; 13 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                         AAY10512 standard; Peptide; 9 AA
                                                                                                                                                                                                                                                                                                                                                                                                 97CA-2209815
                                                                                                                                                                                                                                                                                                                                                                                  97us-0988320
                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                          Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           409902183-A2
                                                                                                                                                                                                                                                                                                                                                    10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                  10-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                 10-JUL-1997;
                                                                                                                      12-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kuendig TM,
                                                                                                                                                                                                                                                                                                                       21-JAN-1999
                                                                                                                                                                                                                                            Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                       AAY10512;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
AAB82061
                            RESULT
AAY1051
```

ΩX

ò g

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (a) an antigen; (b) an immunostimulating substance consisting of neuroactive compounds, hormones, compounds having growth hormone activity or their mixtures; and (c) a polycationic polymer. The present sequence is an antigenic peptide derived from Hepatitis c virus, which was used in the present invention. The composition is useful in manufacturing
                                                                          immunostimulant; vaccine; pharmaceutical composition; antiviral;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antigen; immunostimulant; vaccine; pharmaceutical composition; antiviral;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention relates to a pharmaceutical composition comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New pharmaceutical composition comprising an antigen, an immunostimulating substance and a polycationic polymer, useful in manufacturing vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 40; DB 22; Length 13; 100.0%; Pred. No. 0.027; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Melling J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fleitmann J, Mattner F, Buschle M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CIST-) CISTEM BIOTECHNOLOGIES GMBH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB82060 standard; peptide; 20 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 12; Page 16; 20pp; English.
                                                                                                                                                                                                                                                                                                                                                                                              02-OCT-2000; 2000WO-EP09657.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-OCT-2000; 2000WO-EP09657.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99AT-0001680
HCV antigen, NS4 1787-1799.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV antigen, NS4 1785-1804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2001-290577/30.
```

us-08-854-825-34.rag

ö

Gaps

ö

```
It is the putative sequence encoded in the open reading frame of hepatitis C virus (HCV) cDNA insert in clone 81. It is an epitope, portions of which could be used as immunoassay reagents and vaccines and to generate antibodies useful in diagnosis and passive immunotherapy for HCV infection/non-A, non-B hepatitis.
                                                                                                                                                                                                                                                       Sequence of the polypeptide encoded in the hepatitis C virus (HCV) cDNA insert in clone 81.
                                 Score 40; DB 10; Length 117;
Pred. No. 0.27;
0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                    Hepatitis C virus (HCV); non-A, non-B hepatitis (HANBH)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and associated nucleic acids and polypeptide(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 40; DB 10;
.larity 100.0%; Pred. No. 0.27;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                 88US-0271450; US-122714.
                                                                                                                                                                                  AAP92019 standard; protein; 117 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 13; Figure 4; 139pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR33872 standard; peptide; 117 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ġ
                                    Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 9; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                          88EP-0310922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kuo
                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Purified hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Choo q-L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1989-159274/22.
N-PSDB; AAN92075.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CHIR ) CHIRON CORP
                                                                                                        101 slmaftaav 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 9; Conserv
117 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              117 AA;
                                                                                         1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                         18-NOV-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                 14-NOV-1988;
                                                                                                                                                                                                                                     02-MAR-1990
                                                                                                                                                                                                                                                                                                                                                                               31-MAY-1989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUL-1993
                                                                                                                                                                                                                                                                                                                                                      EP318216-A.
                                                                                                                                                                                                            AAP92019;
 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR33872;
                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                   AAP92019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR33872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
 So
                                                                                                                  q
                                                                                                                                                                                                              X X X X X X
                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                           ;
                                                                                                                                                                   The present invention relates to a pharmaceutical composition comprising (a) an antigen; (b) an immunostimulating substance consisting of neuroactive compounds, hormones, compounds having growth hormone activity or their mixtures; and (c) a polycationic polymer. The present sequence is an antigenic peptide derived from Hepatitis c virus, which was used in the present invention. The composition is useful in manufacturing
                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus gene - used for prodn. of polynucleotide probes, polypeptide(s) and antibodies for diagnosis, prevention and treatment of infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The sequence is the peptide encoded by the hepatitis C virus (FKV) CDNA insert in DNA B1 (see AAN90305). The polypeptides are used to diagnose HCV-induced NANBH, to raise antibodies for immunoassay or treatment, or to produce vaccines.
                                                                                         New pharmaceutical composition comprising an antigen, an immunostimulating substance and a polycationic polymer, useful in
                                                                                                                                                                                                                                                                                                                                         ;
                                                                                                                                                                                                                                                                                                                 Length 20;
                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence of hepatitis C virus cDNA insert in DNA 81.
                                                                                                                                                                                                                                                                                                              100.0%; Score 40; DB 22;
100.0%; Pred. No. 0.042;
ive 0; Mismatches 0;
                                     Buschle M, Melling J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus; DNA 81; probe; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           117 AA.
            (CIST-) CISTEM BIOTECHNOLOGIES GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; fig 4; 235pp; English.
                                                                                                                                           Claim 12; Page 16; 20pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kuo G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAP90136 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88GB-0027024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87US-0122714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (CHIR ) CHIRON CORPORATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1989 (first entry)
                                     Mattner F,
                                                                                                                                                                                                                                                                                                              Query Match 100.
Best Local Similarity 100.
Matches 9% Conservative
                                                                                                                  manufacturing vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Choo QL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1989-215054/30.
                                                               WPI; 2001-290577/30
                                                                                                                                                                                                                                                                                                                                                                                 20 AA;
                                                                                                                                                                                                                                                                                                                                                                  σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; AAN90305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pan troglodytes
                                                                                                                                                                                                                                                                                                                                                                  1 SLMAFTAAV
                                     Fleitmann J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-NOV-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-NOV-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GB2212511-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26-JUL-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAP90136;
                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP90136
                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
õ
                                                                                                                                                                                                                                                                                                                                                                                          g
```

ö

Gaps

ö

Gaps

0;

```
The polypeptide may be prepared by solid phase synthesis fragment coupling (pref.) or using recombinant technology. The assay has increased sensitivity and is more specific than assays using the polypeptide C100-3 (EP-318216). See also AAQ13146-48 and AAR13343-65.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The sequence is the peptide encoded by the hepatitis C virus (HCV) cDNA insert in clone 5-1-1, 81, 91 and 1-2 (see AAN90304). The polypeptides are used to diagnose HCV-induced NANBH, to raise antibodies for immunoassay or treatment, or to
                                                                                                                                              100.0%; Score 40; DB 12; Length 118; 100.0%; Pred. No. 0.27; 1.1ve 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 40; DB 10; Length 128; 100.0%; Pred. No. 0.29; Live 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C virus; clone 5-1-1, 81, 91, 1-2; probe; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus gene - used for prodn. of polynucleotide polypeptide(s) and antibodies for diagnosis, prevention and treatment of infection.
                                                                                                                                                                                                                                                                                                                                                               Sequence of hepatitis C virus cDNA insert in clone 5-1-1,
                                                                                                                                                                                                                                                                                       AAP90135 standard; protein; 128 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; fig 3; 235pp; English.
            Claim 1; Page 45; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88GB-0027024.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87US-0122714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CHIR ) CHIRON CORPORATION.
                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Houghton M, Choo QL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1989-215054/30.
N-PSDB; AAN90304.
                                                                                                                                                                                                                102 slmaftaav 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112 simaftaav 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA;
                                                                                                             118 AA;
                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 produce vaccines.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
                                                                                                                                                                                                                                                                                                                                                                                                                          Pan troglodytes
                                                                                                                                                                                                 1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-NOV-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-NOV-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   3B2212511-A.
                                                                                                                                                                                                                                                                                                                                     01-NOV-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-1989
                                                                                                                                                                                                                                                                                                                                                                           91 and 1-2
                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                              AAP90135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                              RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Н
                                                                                                                                                                                                                                                                          AAP90135
  X & X O O O O O O X 8
                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                       П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                               The synthetic peptide p1689 represents amino acid residues 1689-1805 of the hepatitis C viral antigen. The peptide may be used in an assay to detect antibodies to HCV and thus to diagnose chronic HCV infection. See also AAR33861-87.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                       Hepatitis C virus; NANBH; assay; antibody; p380-JH1; p380-J; p380LG;
                                                                                                                                                                                                                                                           Assay for detecting presence of antibody to hepatitis C viral antigen - by contacting sample with polypeptide contg. at least
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Immunological assays for hepatitis C virus antibody - by using polypeptide(s) contg. epitope(s) of hepatitis C virus antigens
                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 40; DB 14; Length 117; 100.0%; Pred. No. 0.27; 1.ive 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                            0.27;
hes 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C100-3; hepatitis C virus; immunoassay; epitope.
Polypeptide p1689 comprising HCV viral antigen
                                                                                                                                                                                                                                                                                                             Disclosure; Page 13; 63pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR13354 standard; Protein; 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P1689 HCV antigen (1689-1805)
                                                                                                                                                                                                                                                                                     one epitope of virus antigen
                                                                                                                                   92WO-US07813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90US-0610180,
89US-0456162,
                                                                                                                                                            91us-0760292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90AU-0068390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ABBO ) ABBOTT LABORATORIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                             Leung TK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                   WPI; 1993-117563/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1991-238393/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
nes 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 slmaftaav 109
                                                                                                                                                                                                                                                                                                                                                                                                  117 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 SLMAFTAAV 9
                                                                                                                                                                                   (ABBO ) ABBOTT
                                                                                                                                                                                                             Lesniewski RR,
                                                                                                                                   16-SEP-1992;
                                                                                                                                                            16-SEP-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-0CT-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-DEC-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   07-NOV-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22-DEC-1989;
                                                                                 WO9306247-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AU9068390-A.
                                                                                                         01-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-JUN-1991
                                                           Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR13354;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR13354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
 ð
```

ö

Gaps

; 0

probes,

```
combined open reading frames of clones 36 and
                                                                                                                                                                                                                                                                                                  The sequence is the peptide encoded by the combined open reading frame of hepatitis C virus (HCV) cDNAs in clones 36 and 81 (see AM90307). The polypeptides are used to diagnose HCV-induced NANBH, to raise antibodies for immunoassay or treatment, or to produce vaccines.
                                                                                                                                                                                                                 Hepatitis C virus gene - used for prodn. of polynucleotide probes, polypeptide(s) and antibodies for diagnosis, prevention and treatment of infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus (HCV); non-A, non-B hepatitis (HANBH)
                                                                                                                                                                                                                                                                                                                                                                                                                    Score 40; DB 10;
Pred. No. 0.55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88US-0271450; US-122714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1..135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAP92021 standard; protein; 237 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hepatitis C virus (HCV) cDNA
                                                                                                                                                                                                                                                                          Disclosure; fig 6; 235pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
ilarity 100.0%;
Conservative 0;
                                                                                                                                             ö
                                                                                  87US-0122714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kno
                                                       88GB-0027024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88EP-0310922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  encoded in the
                                                                                                                (CHIR ) CHIRON CORPORATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= a
121..237
/*tag= b
121..237
/*tag=c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Choo q-L,
                                                                                                                                           Choo QL,
                                                                                                                                                                        WPI; 1989-215054/30.
N-PSDB; AAN90307.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CHIR ) CHIRON CORP
                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          221 slmaftaav 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             σ
                                                                                                                                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Key
misc_feature
                                                       18-NOV-1988;
                                                                                    18-NOV-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-NOV-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-NOV-1988;
GB2212511-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-MAR-1990
                                                                                                                                           Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-MAY-1989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP318216-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAP92021;
                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81 of
Óγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     It is encoded in the open reading frame of a composite nucleotide sequence derived from overlapping hepatitis C virus (HCV) DNA in clones 81, 1-2, and 91, isolated using a synthetic sequence equivalent to a fragment of HCV cDNA in clone 5-1-1. It is an epitope, portions of which could be used as immunosasay reagents and vaccines and to generate antibodies useful in diagnosis and passive immunotherapy for HCV infection/non-A, non-B hepatitis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                        Sequence of the polypeptide encoded in a composite sequence of the hepatitis C virus (HCV) cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus; open reading frame; clone 36; clone 81; probe;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              combined ORF of hepatitis C virus cDNAs in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                       Hepatitis C virus (HCV); non-A, non-B hepatitis (HANBH)
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Purified hepatitis C virus - and associated nucleic acids and polypeptide(s) % \left( \frac{1}{2}\right) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             h Similarity 100.0%; Score 40; DB 10; Similarity 100.0%; Pred. No. 0.29; 9; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                 88US-0271450; US-122714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           237 AA
                                                       AAP92018 standard; protein; 128 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 13; Figure 3; 139pp; English
                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAP90138 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                           Kuo
                                                                                                                                                                                                                                                                                                      88EP-0310922
                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                         Houghton M, Choo q-L,
                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1989-159274/22.
N-PSDB; AAN92074.
                                                                                                                                                                                                                                                                                                                                                              (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Peptide encoded by clones 36 and 81.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best_Local Similarity
Matches 9; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        128 AA;
                                                                                                                                                                                                                  Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pan troglodytes
                                                                                                                                                                                                                                                                                                      18-NOV-1988;
                                                                                                                02-MAR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1989
                                                                                                                                                                                                                                                                          31-MAY-1989
                                                                                                                                                                                                                                               EP318216-A.
                                                                                  AAP92018;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAP90138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     vaccine
```

AAP90138

ò g

ö

Gaps

; 0

ö

Length 237; Indels

```
ô
                                                                                                                                It is the polypeptide sequence encoded in the combined open reading frames of the hepatitis C virus (HCV) cDNA of clones 36 and 81. It is not necessarily physically derived from HCV cDNA but may be generated in any manner. Tag a = clone 36. Tag b = clone 81. Tag c = the region of overlap between clones 36 and 81. It is an epitope, portions of which could be used as immunoassay reagents and vaccines and to generate antibodies useful in diagnosis and passive immunotherapy for HCV infection/non-A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This sequence is used in a novel method for identifying a compound that alters activity of Hepatitis C Virus (HCV) NS4B protein. HCV NS4B modulators can be used as antiviral compounds and as therapeutic agents to treat viruses of the Flaviviridae family, including HCV, yellow fever virus, Dengue viruses types 1-4, and pestiviruses such as bovine viral diarrhoea virus and classic swine fever. Treatment of an HCV-infected human with a HCVI NS4B antagonist, and treatment of an HCV-infected mammal with a HCV NS4B agonist is claimed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NS4B protein; ATPase; Flaviviridse; antiviral compound; Dengue virus; therapeutic agent; yellow fever virus; pestiviruses; swine fever; bovine viral diarrhoea virus.
                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Detecting Hepatitis C Virus NS4B protein modulators - useful treat infection with viruses of the Flaviviridae family
                                                                                                                                                                                                                                                                                                                                        100.0%; Score 40; DB 10; Length 237; 100.0%; Pred. No. 0.55; 1ive 0; Mismatches 0; Indels (
                                              Purified hepatitis C virus
- and associated nucleic acids and polypeptide(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW92815 standard; protein; 269 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 6; Page 21-22; 27pp; English.
                                                                                                  Claim 13; Figure 6; 139pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (SMIK ) SMITHKLINE BEECHAM CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0051582.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98WO-US13790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Delvecchio A, Zhong W;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-106080/09.
WPI; 1989-159274/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                              221 slmaftaav 229
                                                                                                                                                                                                                                                                                        237 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HCV NS4B protein.
                N-PSDB; AAN92077
                                                                                                                                                                                                                                                        non-B hepatitis.
                                                                                                                                                                                                                                                                                                                                                                                                              1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9901582-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-JAN-1999
                                                                                                                                                                                                                                                                                            Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW92815;
                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW92815
                                                                                                                                                                                                                                                                                                                                                                                                                                                a
å
```

<u>ئ</u> را

```
ó
                                                    Gaps
                                                   ;
                             Length 269;
                             100.0%; Score 40; DB 20; Length 2
100.0%; Pred. No. 0.63;
.ive 0; Mismatches 0; Indels
                                                                                                                                      Search completed: August 23, 2002, 10:01:00 Job time: 390 sec
                                                    Conservative
                              Query Match
Best Local Similarity
                                                                                           86
                                                                       σ
                                                                      1 SLMAFTAAV
                                                                                    6;
Sequence
                                                  Matches
                                                                                            78
                                                                       ŏ
                                                                                           QQ
```

269 AA;

ÖS

```
IL
USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: II COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-214-650-34
δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  148, Appli
9, Appli
30, Appl
52, Appl
53, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8, Appli
14, Appl
1, Appli
68, Appl
                                                                                                                                                                      (without alignments)
3.559 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12,
12,
54,
                                                                                                                                                ; Search time 61.77 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sednence sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                         231628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1: /cgn2_6/ptcdata/2/laa/5A_COMB.pep:*
2: /cgn2_6/ptcdata/2/laa/5B_COMB.pep:*
3: /cgn2_6/ptcdata/2/laa/6A_COMB.pep:*
4: /cgn2_6/ptcdata/2/laa/6B_COMB.pep:*
5: /cgn2_6/ptcdata/2/laa/pCTUS_COMB.pep:*
6: /cgn2_6/ptcdata/2/laa/pCTUS_COMB.pep:*
                  4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PCT - US92 - US93 - US92 - US9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCT - US92-07813-12
US-08-444-818-8
US-08-444-818-14
US-09-100-557-11
US-08-444-818-68
US-08-444-818-20
US-08-867-611-47
US-08-867-611-48
US-08-867-611-16
US-08-867-611-16
PCT US92-0695A-21
                                                                                                                                                                                                                                                                                                                                                                                                                                    hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                           231628 seqs, 24425594 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARIES
                  GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                    protein search, using sw model
                                                                                                                                             August 23, 2002, 09:57:52
                                                                                                                                                                                                                                                                                                                         BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Issued_Patents_AA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length: 0
length: 2000000000
                                                                                                                                                                                                                                  US-08-854-825-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                             1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2337
2693
3823
3823
5925
5935
7781
7781
971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perfect score:
                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                    OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٠
ي
```

```
Sequence 75, Appl
Sequence 23, Appl
Sequence 23, Appl
Sequence 23, Appl
Sequence 23, Appl
Sequence 3, Appli
Sequence 3, Appli
Sequence 124, Appl
Sequence 138, Appli
Sequence 11, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 36, Appli
Sequence 36, Appli
Sequence 36, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Chisari, Francis V.
APPLICANT: Cerny, Andreas
TITLE OF INVENTION: PEPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 40; DB 1; Length 9; 100.0%; Pred. No. 1.7e+05; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/214,650
US-08-444-818-66
US-08-444-818-75
US-08-46-9758-23
US-08-91-6718-23
US-08-91-6718-23
US-08-443-260-3
US-08-443-260-3
US-08-443-9008-3
US-08-443-9008-3
US-08-444-818-138
US-08-445-552-1
US-08-453-552-2
US-08-440-103-36
US-08-440-103-36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: Leydig, Voit & Mayer
STREET: Two Prudential Plaza, Suite 4900
CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                      ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 34, Application US/08214650 Patent No. 5709995 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Silvert, Donald J.
REGISTRATION NUMBER: 375.2
REFERENCE/DOCKET NUMBER: 6123
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 616-5600
TELEX: 25-353
INFORMATION FOR SEQ ID NO: 34:
SEQUENCE CHARACTERISTICS:
LENGTH: 9 amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9; Conservative
                                                                2894
2894
2894
2894
2894
2995
2995
2995
3011
3011
3011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; MOLECULE TYPE: peptide US-08-214-650-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 9; Conserv
```

q

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 40; DB 5; Length 117; 100.0%; Pred. No. 0.12; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 8, Application US/08444818

Patent No. 6120087

GENERAL INFORMATION:

APPLICANT: Chien, David Y.

APPLICANT: Rutter, William J.

TITLE OF INVENTION: NANBV Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777

CORRESPONDENCE ADDRESS:

ADDRESSED: Chiron Corporation

STREET: 4560 Horton Street

CITY: Emeryville
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US92/07813
FILING DATE: 19920916
CLASSIFICATION:
RAME: POREMBSKIP, PRISCILLA E.
REGISTRATION NUMBER: 33,207
REFERENCE/DOCKET NUMBER: 33,207
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPRAX: 708-937-6365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/444,818 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE: CA
COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: FLORPY disk
COMPUTER: IBM PC compatible
COMPUTER: PCODS/MS-DC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Harbin, Alisa A. REGISTRATION NUMBER: 33,895 REFERENCE/DOCKET NUMBER: 01
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                          TELEFAX: 708-937-9556
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 117 amino acids
TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (508)359-3885
INFORMATION FOR SEQ ID NO: 8:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (508)359-3876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 128 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.0
Best Local Similarity 100.0
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                               ; MOLECULE TYPE: peptide PCT-US92-07813-12
                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101 SLMAFTAAV 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-444-818-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 40; DB 4; Length 117; 100.0%; Pred. No. 0.12; 1ve 0; Mismatches 0; Indels
                                                                                                  Sequence 10, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NANBV Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUW TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/444,818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAD377/AP6D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
PCT-0S92-07813-12
Sequence 12, Application PC/TUS9207813
GENERAL INFORMATION:
APPLICANT: LESNIEWSKI, RICHARD R.
APPLICANT: LEUNG, TAT K.
TITLE OF INVENTION: HEPATITIS C ASSAY
NUMBER OF SEQUENCES: 27
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
CLASSIPICATION: 144
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14 MAR-1995
ATTONREV/AGENT INCORMATION:
NAME: Harbin, Alisa A.
REGISTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 0110.002
TELECOMMUNICATION INFORMATION:
TELEFAX: (508)359-3876
TELEFAX: (508)359-3876
INFORMATION FOR SEQ. ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: ABBOTT LABORATORIES
STREET: ONE ABBOTT PARK ROAD
                                                                                                                                                                                                                                                                                            ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: U.S.A.
ZIP: 60064-3500
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 117 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: protein US-08-444-818-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: ABBOTT PARK
STATE: ILLINOIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 SLMAFTAAV 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 SLMAFTAAV 9
      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                              US-08-444-818-10
                                                                                                                                                                                                                                                                                                                                          CITY: E
STATE:
```

q

ò

ö

```
TITLE OF INVENTION: SCREENING METHODS USING AN
TITLE OF INVENTION: ATPASE PROTEIN FROM A VIRUS OF THE FLAVIVIRIDAE FAMILY
NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
ADDRESSEE: SmithKline Beecham Corporation
STREET: 709 Swedeland Road
CITY: King of Prussia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 3; Length 269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 66, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NNBV Diagnostics and Vaccines NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSE: Chiron Corporation
STREET: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: CA
COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TEM PC compatible
COMPUTER: PETENT PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/444,818
FILING DATE:
                                                                                                                                                              COUNTRY: USA
ZIP: 19406-0939
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
CURENT APPLICATION DATA:
APPLICATION NUMBER: US/09/100,557
FILING DATE: 19-JUN-1998
CLASSIPICATION NATA:
APPLICATION NUMBER: 60/051,582
FILING APPLICATION DATA:
APPLICATION NUMBER: 60/051,582
FILING DATE: 02-JUL-1997
ATTORNEY/AGENT INFORMATION:
NAME: Dinner, Dara L.
REGISTRATION NUMBER: 33,680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 40; DB
100.0%; Pred. No. 0.3
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P50675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: P5
TELECOMMUNICATION INFORMATION:
TELEPHONE: 610-270-5017
TELEFAX: 610-270-5090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 3
SEQUENCE CHARACTERISTICS:
LENGTH: 269 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
STRANDEDNESS: sir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 SLMAFTAAV 9
                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-444-818-68
                                                                                                                                                          COUNTRY:
                                                                                                                                          STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 40; DB 4; Length 237; 100.0%; Pred. No. 0.26;
                                                                              DB 4; Length 128;
                                                                                            0.13;
has 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                    Sequence 14, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NAULUS Diagnostics and Vaccines NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/444,818
                                                                        100.0%; Score 40; DB
100.0%; Pred. No. 0.1
:ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Harbin, Alisa A.
REGIGSTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 0110.002
TELEPHONE: (508)359-3876
TELEPHONE: (508)359-3876
INFORMATION FOR SEQ. ID NO: 14:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-WAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/09100557; Sequence 1, Application US/09100557; Patent No. 6010848
GENERAL INFORMATION:
APPLICANT: DelVecchio, Alfred
APPLICANT: Zhong, Weidong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : 237 amino acids
amino acid
                                                      Ouery Match
Best Local Similarity 100..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
; MOLECULE TYPE: protein US-08-444-818-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; MOLECULE TYPE: protein US-08-444-818-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                          11111111
221 SLMAFTAAV 229
                                                                                                                                                      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                  RESULT 5
US-08-444-818-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                      ò
                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
```

```
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: 708-937-636
TELEFAX: 708-937-9556
        Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                      111111111
319 SLMAFTAAV 327
                                                                                  1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                US-08-867-611-58
                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                    ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 40; DB 4; Length 382; 100.0%; Pred. No. 0.43; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Chien, David Y.
APPLICANT: Chien, David Y.
TITLE OF INVENTION: NANBY Diagnostics and Vaccines
WUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/444,818
                                                                                            NAME: Harbin, Alisa A.
REGISTRATION NUMBER: 33,895
REFENCE/DOCKET NUMBER: 0110.002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (508)359-386
INFORMATION FOR SEQ ID NO: 68:
SEQUENCE CHARACTERISTICS:
LENGTH: 382 amino acid
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Harbin, Alisa A. REGISTRATION NUMBER: 33,895
REFERENCE/COCKET NUMBER: 0110.002
TELECOMMUNICATION INFORMATION:
TELEPRONE: (508)359-3876
TELEPRONE: (508)359-3885
INFORMATION FOR SEQ ID NO: 20:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 20, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 460 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; MOLECULE TYPE: protein US-08-444-818-20
                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-444-818-20
                                                                                                                                                                                                                                                                                                                                US-08-444-818-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY:
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
```

```
Deery Watch

Best Local Smillarity 100.0%; Score 60, 053;

Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0; 1 SIMPRING 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0; 1 SIMPRING 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0; 1 SIMPRING 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0; 1 SIMPRING 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0; Conservative 0; Mismatches 0; Indels 0; Conservative 0; Mismatches 0; Indels 0; Gaps 0; Conservative 0; Mismatches 0; Conservative 0; Conservati
```

Gaps

.; 0

```
APPLICANT: DAISON, GEORGE J
APPLICANT: DAISON, GEORGE J
APPLICANT: GUTERREZ, FOBIN A
APPLICANT: GUTERREZ, FOBIN A
APPLICANT: STEWARY, JAMES L
APPLICANT: RIFFRECHT, KEVIN R
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: ANTIGENS
CORRESPONDENCE SPOURCES: 59
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                               100.0%; Score 40; DB 4; Length 592; 100.0%; Pred. No. 0.69; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: BM PC compatible
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION NUMBER: US/08/867,611
FILING DATE: 02-JUN-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/646,757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: ABBOTT LABORATORIES
STREET: ONE ABBOTT PARK ROAD, CHAD377/AP6D2
CITY: ABBOTT PARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RELIGATION NOMBER: US/UG/1/3,090
RELING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/572,822
FILING DATE: 24-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/614,069
FILING DATE: 07-NOV-1990
PRIOR APPLICATION NUMBER: US 07/748,561
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: APPLICATION NUMBER: US/08/179,896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: DEVARE, SUSHIL G
APPLICANT: DESAI, SURESH M
APPLICANT: CASEY, JAMES M
APPLICANT: DAILEY, STEPHEN H
APPLICANT: DAILEY, STEPHEN H
APPLICANT: GUTIERREZ, ROBIN A
APPLICANT: LESNIEWSKI, RICHARD R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 48, Application US/08867611 Patent No. 6172189 GENERAL INFORMATION:
                     TELEFAX: 708-937-9556
INFORMATION FOR SEQ ID NO: 47:
SEQUENCE CHARACTERISTICS:
LENGTH: 592 amino acids
TYPE: amino acid
STRANDEDNESS: single
  708-937-6365
                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                       ; MOLECULE TYPE: peptide US-08-867-611-47
                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                        445 SLMAFTAAV 453
                                                                                                                                                                                                                                                                                                                                                                                                                       1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
  TELEPHONE:
                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-867-611-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                          ö
                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: CASEA, SUSTEESH M
APPLICANT: CASEY, JAMES M
APPLICANT: CASEY, JAMES M
APPLICANT: CASEY, JAMES M
APPLICANT: DAILEY, STEPHEN H
APPLICANT: DAILEY, STEPHEN H
APPLICANT: GUTIEREZ, ROBIN A
APPLICANT: ESTEMARY, JAMES L
APPLICANT: STEMARY, JAMES L
APPLICANT: STEMARY, JAMES L
APPLICANT: STEMARY, JAMES L
APPLICANT: RUPPRECHT, KEVIN R
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: HEPATITIS S
NUMBER OF SEQUENCES: 59
CORRESPONDENCE ADDRESS:
ADDRESSEE: ABBOTT LABORATORIES
STREET: ONE ABBOTT PARK ROAD, CHAD377/AP66D2
CORRESPONDENCE ABROTT PARK ROAD, CHAD377/AP66D2
                                                                                                                                                                                                          ö
                                                                                                                                                100.0%; Score 40; DB 4; Length 512; 100.0%; Pred. No. 0.59; O. Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/867,611
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRICATION DATA:
APPLICATION NUMBER: US 07/572,822
FILING DATE: 24-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/614,069
FILING DATE: 07-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,561
FILING DATE: 21-AUG-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
ATTORNEY/AGENT INFORMATION: US 07/748,565
FILING DATE: 21-AUG-1991
ATTORNEY/AGENT INFORMATION: US 07/748,565
FILING DATE: 10-NUMBER: US 07/748,565
FILING DATE: 10-NUMBER: US 07/748,565
FILING DATE: 10-NUMBER: US 07/748,565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: POREMBSKI, PRISCILLA E
REGISTRATION NUMBER: 33,207
REFERENCE/DOCKET NUMBER: 4834.US.P6
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/646,757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  us/08/179,896
                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 47, Application US/08867611
Patent No. 6172189
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEVARE, SUSHIL G
                                                                                                                                                   Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                     TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-867-611-58
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                         360 SLMAFTAAV 368
                                                                                                                                                                                                                                                        1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                           RESULT 10
US-08-867-611-47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                              ò
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.0%; Score 40; DB 4; Length 597; Best Local Similarity 100.0%; Pred. No. 0.7; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 21, Application PC/TUS9206965A
GENERAL INFORMATION:
APPLICANT: DEVARE, S.
APPLICANT: DAILEY, S.
TITLE OF INVENTION: HCV SYNTHETIC PEPTIDE FROM NSI REGION NUMBER OF SEQUENCES: 35
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPOTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCI/US92/06965A
FILING DATE: 19920821
CLASSIFICATION:
FILING DATE: 21-AUG-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,566
FILING DATE: 21-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: POREMBSKI, PRISCILLA E
REGISTRATION NUMBER: 433,207
REFERENCE/DOCKET NUMBER: 4834.US.P6
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNET/AGENT INFORMATION:
NAME: PORBUSKI, PRISCILLA E.
REGISTRATION NUMBER: 33,207
REFERENCE/DOCKET NUMBER: 4834PC.02
TELECOMMUNICATION INFORMATION:
TELEPHONE: 708-937-6565
TELEPRAX: 708-937-6565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: ABBOTT LABORATORIES STREET: ONE ABBOTT PARK ROAD CITY: ABBOTT PARK STATE: ILLINOIS COUNTRY: U.S. ZIP: 60065-3500
                                                                                                                                                                                                                                                                                          TELEPHONE: 708-937-6365
INFORMATION FOR SEQ ID NO: 16
SEQUENCE CHARACTERISTICS:
LENGTH: 597 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 708-937-9556
INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 597 amino acids
TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-867-611-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; MOLECULE TYPE: protein
PCT-US92-06965A-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11111111
445 SLMAFTAAV 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
PCT-US92-06965A-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: DEVARE, SUSHIL G
APPLICANT: DEVARE, SURBEH M
APPLICANT: CASEY, JAMES M
APPLICANT: CASEY, JAMES M
APPLICANT: DALLEY, STEPHEN H
APPLICANT: GUTERREZ, ROBIN A
APPLICANT: LESNIEWSKI, RECHARD R
APPLICANT: RUPPRECHT, KEVIN R
APPLICANT: RUPPRECHT, KEVIN R
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: HEPATITIS S
CORRESPONDENCE ADDRESS:
ADDRESSEE: ABBOTT LABORATORIES
STRRET: ONE ABBOTT PARK ROAD, CHAD377/AP6D2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 40; DB 4; Length 594; 100.0%; Pred. No. 0.69; ... Indels ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/867,611
FILING DATE: 02.JUN-1997
CLASSIFICATION: 435
FILING DATE: 21-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: POREMBSKI, PRISCILLA E
REGISTRATION NUMBER: 33,207
REFERENCE/DOCKET NUMBER: 4834.US.P6
TELECOMMUNICATION INFORMATION:
TELEPHONE: 708-937-6365
TELEFAX: 708-937-6365
TELEFAX: 708-937-6365
INFORMATION FOR SEQ ID NO: 48:
SEQUENCE CHARACTERISTICS:
LENGTH: 594 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRICATION DATA:
APPLICATION NUMBER: US 07/572,822
FILING DATE: 24-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/614,069
FILING DATE: 07-00-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/646,757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
APPLICATION NUMBER: US/08/179,896
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 16, Application US/08867611
Patent No. 6172189
GENERAL INFORMATION:
APPLICANT: DEVARE, SUSHIL G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                    ; MOLECULE TYPE: peptide US-08-867-611-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 60064-3500
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy (
                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11111111
447 SLMAFTAAV 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60064-3500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-867-611-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

Gaps

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
                                                                                                                                                                                                                                                                                                                                          Sequence 23, Application PC/TUS9206965A
GENERAL INFORMATION:
APPLICANT: DEVARE, S.
APPLICANT: DAILEY, S.
APPLICANT: DAILEY, S.
TITLE OF INVENTION: HCV SYNTHETIC PEPTIDE FROM NSI REGION NUMBER OF SEQUENCES: 35
CORRESPONDENCE ADDRESS:
                                                                                                                 DB 4; Length 599;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 40; DB 5; Length 599; 100.0%; Pred. No. 0.7; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: CONTROLL CONTROLL CONTROLL CONTROLL CONTROLL CONTROLL CONTROLL CATION DATA: CURRENT APPLICATION NUMBER: PCT/US92/06965A FILING DATE: 19920821
                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICALL...

FILING DATE: 1992UBLA

CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: POREMBSKI, PRISCILLA E.
REGISPRATION NUMBER: 33,207
REFERENCE/OOCKET NUMBER: 4834PC.02
TELECHONE: 708-937-6365
"WRI.EFAX: 708-937-9566
"WRI.EFAX: 708-937-9566
                                                                                                               Query Match

Best Local Similarity 100.0%; Pred. No. C
Matches 9; Conservative 0; Mismatche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Search completed: August 23, 2002, 09:57:53 Job time: 203 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: ABBOTT LABORATORIES
STREET: ONE ABBOTT PARK ROAD
CITY: ABBOTT PARK
STATE: ILLINOIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 60065-3500
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             : 599 amino acids
AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 100.
Matches 9; Conservative
             ; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-867-611-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: protein PCT-US92-06965A-23
      TOPOLOGY: linear
                                                                                                                                                                                                                        111111111
447 SLMAFTAAV 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: ILLINOIS COUNTRY: U.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                      RESULT 15
PCT-US92-06965A-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                 ö
                                                 Gaps
                                                                                                                                                                                                                                                                                               APPLICANT: DEVARE, SUSHIL G
APPLICANT: DEVARE, SURSHIL G
APPLICANT: DESAL, SURESH M
APPLICANT: CASEY, JAMES M
APPLICANT: DALLEY, STEPHEN H
APPLICANT: DALLEY, STEPHEN H
APPLICANT: GUTTERREZ, ROBIN A
APPLICANT: LESNIEWSKI, RICHARD R
APPLICANT: RUPPRECHT, KEVIN R
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: HEPATITIS S
ROWERSPONDENCE ADDRESS:
ADDRESSEE: ABBOTT LABORATORIES
STREET: ONE ABBOTT PARK ROAD, CHAD377/AP6D2
                                                 ö
100.0%; Score 40; DB 5; Length 597; 100.0%; Pred. No. 0.7;
                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRICATION DATA:
APPLICATION NUMBER: US 07/572,822
FILING DATE: 24-A0G-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/614,069
FILING DATE: 07-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,561
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
APPLICATION NUMBER: US 07/748,566
FILING DATE: 21-AUG-1991
ATTORNEY AGENT: NFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: POREMBSKI, PRISCILLA E
REGISTRATION NUMBER: 33,207
REFERENCE/DOCKET NUMBER: 4834.US.P6
TELECOMMUNICATION:
TELEPHONE: 708-937-6365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/646,757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: APPLICATION NUMBER: US/08/179,896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/867,611
FILING DATE: 02-JUN-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                       Sequence 18, Application US/08867611
Patent No. 6172189
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 708-937-9556
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : 599 amino acids
amino acid
                    Best Local Similarity 100.
Matches 9; Conservative
                                                                                                               445 SLMAFTAAV 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60064-3500
                                                                                      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                           RESULT 14
US-08-867-611-18
      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE:
                                                                                                                               g
```

ö

Gaps

us-08-854-825-34.rai

```
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

August 23, 2002, 09:56:49; Search time 78.82 Seconds Run on:

(without alignments)
10.972 Million cell updates/sec

US-08-854-825-34 40

1 SLMAFTAAV 9 Title: Perfect score: Sequence:

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Searched:

Total number of hits satisfying chosen parameters:

283138 seqs, 96089334 residues

Minimum DB seq Maximum DB seq

length: 0 length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

+[500		ا ا ا			SUMMARIES	
NO.	Score	Match	Length DB	BB :	ID	Description
-	40	100.0	492	7	PS0326	polyprotein - hepa
7	40	100.0	3011	Н	GNWVC3	α
m	40	100.0	3011	П	GNWVCH	
4	40	100.0	3011	٦	S40770	
S	36	90.0	3010	Н	GNWVTC	
9	36	90.0	3010	Н	GNWVCJ	
7	36	90.0	3010	Н	A45573	
æ	36	90.0	3010		S18030	
σ	36	90.0	3010	٦	GNWVTW	genome polyprotein
10		85.0	3014	П	JC5620	
11	33	82.5	135	~	S67924	spore-wall fungal
12	33	82.5	402	~	B69843	conserved hypothet
13	33	82.5		7	S78347	photosystem II chl
14	32	80.0	466	-	YTBSMA	methylenomycin A r
15	31	77.5		7	S35551	transcription fact
16	31	77.5	3033	Н	JQ1303	genome polyprotein
17	31	77.5		٦	GNWVJ8	genome polyprotein
18	30	75.0			NVB02	vasopressin / neur
19	30	75.0	177	Н	RKDWSU	ribulose-bisphosph
20	30	75.0		Н	RKDWSB	ribulose-bisphosph
21	30	75.0		Н	RKDWSA	ribulose-bisphosph
22	30	75.0		-1	RKDWS4	ribulose-bisphosph
23	30	75.0		П	RKDWS6	ribulose-bisphosph
24	30	75.0		7	T21730	hypothetical prote
25	30	75.0		~	T26957	hypothetical prote
56	30	75.0		7	E88597	protein Y47D3B.6 [
27	30	75.0		7	T35754	probable branched
28	30	75.0	333	7	JX0343	cylglycerol l
58	30	75.0		7	A83802	NAD biosynthesis n

hypothetical prote probable ABC-type	probable membrane enterohemolysin 1	cysteine synthase indole-3-pyruvate	homeobox protein g	hypothetical prote	probable choline u	NADH dehydrogenase	C02C2.1 protein -	glucose transport	oligopeptide trans	conserved probable	hypothetical prote	conserved hypothet
T15506 T28151	S57690 JN0845	S49586 S46984	S52720	A72480	C95943	S50332	S44739	809705	T51439	E95951	T21315	E90270
0.0	0 0	0 0	7	0	~	N	~	~	~	~	~	~
549 701	199 267	324	348	385	366	442	484	492	552	588	802	902
75.0	72.5	72.5	72.5	72.5	72.5	72.5	72.5	72.5	72.5	72.5	72.5	72.5
30	29 29	5 2 3 3 3	29	29	53	29	53	29	29	29	58	53
30	33 33 33	34 35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

```
C,Accession: PS0326
C,Accession: PS0326
R;Li, J.S.; Tong, S.P.: Vitvitski, L.; Lepot, D.; Trepo, C.
A;Title: Two French genotypes of hepatitis C virus: homology of the predominant genot A;Reference number: PS0326; MUID:92039028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó
                                                           polyprotein - hepatitis C virus (isolate Fla) (fragments)
C;Species: hepatitis C virus
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: genomic RNA
A; Residues: 1-492 <LiJ>
A; Cross-references: GB:M60220
A; Note: this sequence corresponds to nonstructural protein NS3 region
A; Note: translation of the nucleotide sequence is not complete
C; Superfamily: hepetisis C virus genome polyprotein
C; Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 40; DB 2; Length 492; 100.0%; Pred. No. 0.54; ative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                             A; Accession: PS0326
RESULT
PS0326
```

Gaps ; 0

111111111 340 SLMAFTAAV 348 1 SLMAFTAAV 9 g δ

7

genome polyprotein - hepatitis C virus (strain HCV-1)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru protein NS4s; nonstructural protein NS4b; nonstructural protein NS5 C; Species: hepatitis C virus
C; Species: hepatitis C virus
C; Date: 30-Sep-1992 #sequence_revision 30-Sep-1992 #text_change 19-Jan-2001
C; Accession: A93166; P00403; P00404; P00404; P00404; P00405; P00404; P00405; P00404; P00405; P00405;

A; Molecule type: genomic RNA A; Residues: 1577-1633 <CHA>

 $^{\circ}$

ö

Gaps

```
S40.7. Concains: capsid protein - hepatitis C virus
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructural N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructural N;Contains: capsid protein S40770
C;Accession: S40770
A;Accession: S40770
A;Accession: S40770
A;Accession: S40770
A;Accession: S40770
A;Accession: CABB: D10749; NID:g221586; PIDN:BAA01582.1; PID:g221587
A;Contains: capsid protein C A; Staumoto, A; Tanaka, T.; Yoshizawa, H.; Tsu N;Contains: protein N;Contains: capsid protein C A;Accession: PC1285
A;Accession: PC1284; MUID:91013116
A;Accession: PC1285
A;Accession: PC1285
A;Accession: PC1285
A;Accession: PC1286
A;Accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genome polyprotein - hepatitis C virus
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru
N;Contains: capsid protein C; envelope protein NS5
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 19-Jan-2001
C;Accession: A38465
R;Takamizawa, A.; Mori, C.; Fuke, I.; Manabe, S.; Murakami, S.; Fujita, J.; Onishi, E
A;Title: Structure and organization of the hepatitis C virus genome isolated from hum
A;Reference number: A38465; MUID:91140698
A;Recession: A38465
A;Molecule type: genomic RNA
A;Residues: 1-3010 <TAK>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A: F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B: F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 40; DB 1; Length 3011; 100.0%; Pred. No. 3.1;
Score 40; DB 1; Length 3011;
Pred. No. 3.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                               Indels
                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
0
                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
100.0%; £
    Query Match 100.

Best Local Similarity 100.

Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity 100.
nes 9; Conservative
                                                                                                                                                                                                                                  1789 SLMAFTAAV 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1789 SLMAFTAAV 1797
                                                                                                                                                                                1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S:
Matches 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ô
                                                                                                                                                                  A, Wolecule type: genomic RNA
A, Residues: 1577-1633 - CCH2>
A, Experimental source: solute: solutes genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; glycoprotein; hydrolase; nonstructura
C; Keywords: ATP; capsid protein C * status predicted < CPC>
F.116-191/Product: capsid protein M * status predicted < CRE>
F.116-191/Product: major envelope protein B * status predicted < NSI>
F.390-729/Product: nonstructural protein NSI * status predicted < NSI>
F.1307-1237/Region: nucleotide-binding motif A (P-loop)
F.1317/Region: bext motif
F.1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fil616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
Fil863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
Fi.2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
Fi.2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
Fi.196, 209, 234, 305, 325, 417, 423, 430, 448, 476, 532, 540, 556, 576, 623, 645, 1213, 1255, 2041, 2077, 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A.Note: neither amino acid nor nucleotide sequence is given
G.Superfamily: hepatitis C virus genome polyprotein
G.Steywords: ATP; capsid protein C #status predicted <CPC>
F.115.Product: capsid protein C #status predicted <CPC>
F.192.389/Product: major envelope protein E #status predicted <NEE>
F.390.729/Product: monstructural protein NS1 #status predicted <NS2>
F.300.1006/Product: nonstructural protein NS2 #status predicted <NS2>
F.1230.1237/Region: nucleotide-binding motif A (P-loop)
F.1317-1317/Region: nucleotide-binding motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        enome polyprotein - hepatitis C virus (strain H)
;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu
protein NS43; nonstructural protein NS4b; nonstructural protein NS5
;Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;1616-1862/Product: nonstructural protein NS4a #status predicted <NAA>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <NAB>
F;2013/Product: nonstructural protein NS5 #status predicted <NS5>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2240,23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rinchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
Proc. Natl. Acad. Sci. U.S.A. 88, 1022-10236, 1991
A;Title: Genomic structure of the human prototype strain H of hepatitis C virus: compari A;Reference number: A41546; MUID:92052256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Note: host Homo sapiens (man)
C; Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
C; Accession: A36814; A41546
R; Inchauspe, G; Zebedee, S; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
submitted to GenBank, July 1992
A; Description: Genomic structure of the human prototype strain H of hepatitis C virus:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Molecule type: genomic RNA
A;Residues: 1-3011 <INC>
A;Cross-references: GB:M67463; NID:g329737; PIDN:AAA45534.1; PID:g329738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 40; DB 1; Length 3011; Similarity 100.0%; Pred. No. 3.1; 9; Conservative 0; Mismatches 0; Indels
                                             A:Experimental source: isolates E-bl6 A:Accession: PQ0404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number: A36814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1789 SLMAFTAAV 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 SLMAFTAAV 9
                                                                                                                                       Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Accession: A36814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

; 0

Gaps

23 10:30:31 2002

Aug

Fri

```
genome polyprotein - hepatitis C virus (strain JT)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru
protein NS4s; nonstructural protein NS4b; nonstructural protein NS5
C;Species: hepatitis C virus
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
C;Accession: A45573
R;Tanaka, T.; Rato, N.; Nakagawa, M.; Ootsuyama, Y.; Cho, M.J.; Nakazawa, T.; Hijikat
N;Itle: Molecular cloning of hepatitis C virus genome from a single Japanese carrier
A;Reference number: A45573; MUID:92295714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A. Experimental source: HCV-JT
A. Note: sequence extracted from NCBI backbone (NCBIN:106206, NCBIP:106207)
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C virus genome polyprotein
C. Seywords: ATP: 91ycoprotein: hydrolass: nucleotide binding; P-loop; polyprotein: C. Status predicted CPD>
F.116-191/Product: envelope protein M *status predicted CME>
F.130-189/Product: major envelope protein E *status predicted cNS1>
F.730-729/Product: monstructural protein NS1 *status predicted cNS2>
F.1007-1615/Product: honstructural protein NS2 *status predicted cNS2>
F.1007-1615/Product: honstructural protein NS2 *status predicted cNS2>
F.1007-1615/Product: honstructural protein NS2 *status predicted cNS2>
F.1007-1615/Product: nucleotide-binding motif A (P-loop)
F.1312-1317/Region: nucleotide-binding motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C; Species: hepatitis C virus
A; Variety: isolate JK1
C; Date: 19-May-2000 #text_change 23-Mar-2001
C; Accession: S18030; S33570; A48332; S18029
C; Accession: S18030; S33570; A48332; S18029
R; Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
submitted to the EMBL Data Library, September 1991
A; Description: A whole genome of hepatitis C virus CDNA was isolated from a single pa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Cross-references: EMBL:X61596; NID:959478; PIDN:CAA43793.1; PID:959479
A; Experimental source: isolate JK1 from an individual
R; Honda, M.; Kaneko, S.; Unoura, M.; Kobayashi, K.; Murakami, S.
Arch. Virol. 128, 163-169, 1993
A; Title: Sequence analysis of putative structural regions of hepatitis C virus isolat A; Reference number: A48332; MUID:93119270
A; Reference number: A33570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: DNA
A;Residues: 1-3010 <TAN>
A;Cross-references: GB:D11168; GB:D01171; NID:9221612; PIDN:BAA01943.1; PID:9221613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genome polyprotein - hepatitis C virus (isolate JK1)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98)
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;1316-1319/Region: DEXH motif
F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <N85>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 36;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90.08;
77.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: genomic RNA A; Residues: 1-3010 <HON>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: genomic RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Reference number: S18028
A;Accession: S18030
                                                                        ||||||||:
| 1789 SLMAFTASI 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1789 SLMAFTASI 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 7; Conserv
                      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession: A45573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Н
                                                                                                                                                                                                                                                                           A45573
                                                                                                   pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genome polyprotein - hepatitis C virus (strain J)

Nochatains: capsid protein C: envelope protein M; major envelope protein B; nonstructural protein NS43: nonstructural protein NS44: nonstructural protein NS44: nonstructural protein NS45: nonstructural protein NS5: sugimura, T.; Shimot Rato, N.; Hijkata, M.; Octauyama, Y.; Nakagawa, M.; Ohkoshi, S.; Sugimura, T.; Shimot Proc. Natl. Acad. 681, 1935; MUID:91088550
A; McCoss. nonstructural RNA
A; Residues: 1.3010 cKAP
A; Cross-references: GE:090208; NID:921610; PIDN:BAA14233.1; PID:9221611
B; Kato, N.; Ohkoshi, S.; Shimotohno, K.
Proc. Jpn. Acad. 681, 219-223, 1989;
A; Title: Japanese isolates of the non-A, non-B hepatitis viral genome show sequence variant A; Reference number: PS0085
A; Molecule type: genomic RNA
A; Residues: 260-2707 cKA2>
A; Experimental source: Japanese isolate
C; Comment: The clawage sites of this polyprotein have not been determined.
C; Superfamily: hepatitis C virus genome Polyprotein C; Superfamily: hepatitis C virus genome Polyproted C; Superfamily: hepatitis C virus genome Polyprotein F; 130-739; Product: envelope protein M status predicted cRPN
F; 116-191/Product: envelope protein M status predicted cRPN
F; 130-1306/Product: nonstructural protein NS1 status predicted cNS2>
F; 130-1307/Region: nucleotide-binding motif B
F; 131-1319, Region: nucleotide-binding motif B
F; 131-1319, Region: nucleotide-binding motif B
A;Cross-references: EMBL:M58335; NID:g329770; PIDN:AAA72945.1; PID:g329771
C;Superfamily: hepatitis C virus genome polyprotein G;Superfamily: hepatitis C virus genome polyprotein G;Superfamily: hepatitis C virus genome polyprotein; glycoprotein; hydrolase; nonstructural C;Reywords: AFP; capsid protein C #status predicted <CPC>
F;105-187Product: capsid protein C #status predicted <CPC>
F;105-187Product: major envelope protein B #status predicted <NS1>
F;107-106/Product: nonstructural protein NS1 #status predicted <NS2>
F;107-165/Product: nonstructural protein NS2 #status predicted <NS2>
F;1230-1237/Region: nucleotide-binding motif A (P-loop)
F;1316-1319/Region: nucleotide-binding motif B (P-loop)
F;1316-1319/Region: nucleotide-binding motif B F;1316-203/Product: nonstructural protein NS4b #status predicted <N4B>
F;186-203/Product: nonstructural protein NS5b *status predicted <N85>
F;196,209,234,250,305,325,417,423,430,448,532,540,556,576,623,645,1213,1255,2041,2077,22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <NAB>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,325,417,423,430,448,532,556,576,623,645,1213,1255,2041,2077,2240,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90.0%; Score 36; DB 1; Length 3010; 77.8%; Pred. No. 23; 0; Indels ive 2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90.0%; Score 36; DB 1; Length 3010; 77.8%; Pred. No. 23; 0; Indels ive 2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 77.8
اتم 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity 77.8 nes 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1789 SLMAFTASI 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
```

(nonstru

ö

4

```
A Molecule type: mRNA
A; Residues: 1-3014 < CHA>
A; Cross-references: GB:Y13184
A; Experimental source: genotype 5a, which predominates in South Africa
A; Experimental source: genotype 5a, which predominates in South Africa
A; Experimental source: genotype 5a, which predominates in this paper
C; Superfamily: hepatitis C virus genome polyprotein
F; 2-115, Product: envelope protein M *status predicted < EPM>
F; 116-191/Product: envelope protein M *status predicted < MEE>
F; 384 408/Region: hypervariable *status protein NS1 *status predicted < NS1>
F; 731-1007/Product: nonstructural protein NS2 *status predicted < NS2>
F; 1231-1238/Region: uncleotide-binding motif A (P-loop)
F; 1312-1318/Region: uncleotide-binding motif A (P-loop)
                                                                                                                                                                                                                                                                                                                                                                                   C; Species: hepatitis C virus
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
C;Accession: JC5620
E;Chamberlain, R.W.; Adams, N.J.; Taylor, L.A.; Simmonds, P.; Elliott, R.M.
Biochem. Biophys. Res. Commun. 236, 44-49, 1997
A;Title: The complete coding sequence of hepatitis C virus genotype 5a, the predomina A;Reference number: JC5620; MUID:97366593
                                                                                                                                                                                                                                                                                    N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Spore-vall fungal hydrophobin DewA - Emericella nidulans
Spore-vall fungal hydrophobin DewA - Emericella nidulans
C;Species: Emericella nidulans, Aspergillus nidulans
C;Species: Emericella nidulans, Aspergillus nidulans
C;Species: Emericella nidulans, Aspergillus nidulans
C;Accession: S67924
R;Stringer, M.A.; Timberlake, W.E.
MA.; Microbiol. 16, 33-44, 1995
A;Title: dewA encodes a fungal hydrophobin component of the Aspergillus spore wall.
A;Reference number: S67924
A;Accession: S67924
A;Accession: S67924
A;Accession: S67924
A;Accession: S67924
A;Accessions: S67924
A;Coscessions: S67924
A;Coscessions
A;Coscessions
A;Coscessions
A;Coscessions
A;Coscessions
A;Coscessions
A;Coscessions
A;Coscessions
A;Coscessions
A;Cosc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;1617-1863/Product: nonstructural protein NS4a #status predicted <NAA> F;1864-2014/Product: nonstructural protein NS4b #status predicted <NAB> F;2015-3014/Product: nonstructural protein NS5 #status predicted <NAS> F;2010-2249/Region: interferon sensitivity determining #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 34; DB 1; Length 3014;
Pred. No. 65;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                 genome polyprotein - hepatitis C virus (isolate EUH1480)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 33; DB 2;
Pred. No. 5.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82.5%;
ilarity 87.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;1317-1320/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 85.0
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :||:|||||
1790 TLMSFTAAV 1798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Map position: V
A; Introns: 97/1; 121/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Gene: dewA; CAN4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            д
                                                                                                                                                                                                     A:Note: use durings trainings trainings to the status of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: genomic RNA
A; Residues: 1-3010 COHES
A; Cross-references: Gs. M84754
A; Cross-references: Gs. M84754
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; glycoprotein; hydrolase; nonstructura
C; Superfamily: hepatitis C virus genome protein; glycoprotein; hydrolase; nonstructura
C; Reywords: ATP; capsid protein C *status predicted <EPM>
F; 116-191/Product: envelope protein E *status predicted <MEE>
F; 380-729/Product: nonstructural protein NS1 *status predicted <NS1>
F; 300-729/Product: hepacivirin *status predicted <NS2>
F; 1230-1615/Product: hepacivirin *status predicted <NS2>
F; 1230-1317/Region: nucleotide-binding motif B
F; 1312-1317/Region: nucleotide-binding motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genome polyprotein - hepatitis C virus (strain Taiwan)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu protein NS4a; nonstructural protein NS4b; nonstructural protein NS5 C;Species: hepatitis C virus
A;Note: host Homo sapiens (man)
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (AS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,233,234,280,305,325,417,423,430,448,532,540,556,576,623,645,1213,1255,2041,207
A;Residues: 1-547,'T',549-621,'V',623-624,'S',626-652,'DL',655-761,'T',763-782 <HOW>
A;Cross-references: EMBL:X61591
A;Note: this sequence is inconsistent with the nucleotide translation
A;Note: the authors translated the codon AGG for residue 43 as Pro, TGG for residue 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Chen, P.J.; Lin, M.H.; Tai, K.F.; Liu, P.C.; Lin, C.J.; Chen, D.S. Vicology 188, 102-113, 1992
A;Title: The Taiwanese hepatitis C virus genome: sequence determination and mapping the A;Reference number: A40244; MUID:92230206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,417,423,448,532,540,556,576,623,645/Binding site: carbohydrate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 36; DB 1; Length 3010;
Pred. No. 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 36; DB 1;
Pred. No. 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 90.0
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1789 SLMAFTASI 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Accession: A40244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession: A40244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
```

ö

ö

1 SLMAFTAA 8

ŏ

1789 SLMAFTASI 1797

qq

10:30:31 2002

23

Aug

Fri

ö

Gaps

; 0

```
A; Cross-references: EMBL.X66121; NID:940214; PIDN:CAA46908.1; PID:940215
R; Kunst, F.; Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Ber C.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Cappano, V.; Carter, N.M.; A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, Nature 390, 249-256, 1997
A; Authors: Foulger, D.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, A; Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galizzi, A.; Alarwood, C.R.; Henaut, A.; Hibbert, H.; Holsappel, S.; Hosono, S.; Hullo, M. Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardino A; Authors: Lauber, J.; Asaroric, V.; Lee, S.M.; Levine, A.; Liu, H.; Msuda, S.; Mau, Y. M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanl A; Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Se akeuchi, M.; Tamakoshi, A.; Tamaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiya T.; Winters; Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.; Tata, K.; Yoshida A; Atthors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.; Rata, K.; Yoshida A; Atteenene number: A69580; MUID:98044033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           methylenomycin A resistance protein mmr - Bacillus subtilis
C;Species: Bacillus subtilis
C;Species: Dec.1992 #sequence_revision 31-Dec.1992 #text_change 16-Jun-2000
C;Accession: 140493; G69658; S22742
R;Putzer, H.; Gendron, N.; Grunberg-Manago, M.
EMBO J. 11, 3117-3127, 1992
A;Fitler: Co-ordinate expression of the two threonyl-tRNA synthetase genes in Bacillus A; Accession: 140493; MUID:92347349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transcription factor IIF chain RAP74 - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 09-Dec-1993 #sequence_revision 26-May-1995 #text_change 21-Jul-2000
C;Accession: 835551
R;Gong, D.W.; Hasegawa, S.; Wada, K.; Roeder, R.G.; Nakatani, Y.; Horikoshi, M.
Nucleic Acids Res. 20, 6736, 1992
A;Title: Elucidation of three putative structural subdomains by comparison of primary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: GB:299123; GB:AL009126; NID:92636240; PIDN:CAB15784.1; PID:926362
A;Experimental source: strain 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: nucleic acid sequence not shown; translation not shown
F;15/Binding site: phosphate (Thr) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-466 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Gene: mmr
C;Superfamily: tetracycline resistance protein
C;Keywords: antibiotic resistance; membrane protein
                                                                                                                               ore 33; DB;
ed. No. 18;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 29;
                                                                                                                               Score 33;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80.0%;
                                                                                                                               82.5%;
77.8%;
                                                                                Ouery Match
Best Local Similarity 77.0
اجم 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                       278 SLMGFTAAL 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Residues: 1-466 <KUN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |:||||||
236 LVAFTAAV 243
                                                                                                                                                                                                                                                                                                             1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 LMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S3551
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δŏ
                                                                                                                                                                                                                                       conserved hypothetical protein yjbB - Bacillus subtilis
C;Species: Bacesion: B68843
R;Kunst, F; Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Berter
C; Baron, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Chc
A.; Ehrlich, S.D.; Emmerson, P.T.: Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E.
A;Buthors: Foulgar, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galler
iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Huston, S.; Hullo, M.F.
Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois,
A;Authors: Lauber, J.; Lazaravolc, V.; Lee, S.M.; Levine, A.; Pohl, T.M.; Portetelle
Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlon,
A;Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Seror
akeuchi, M.; Tanakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiyama,
T.; Winters, P.; Wipat, A.; Yanamoto, H.; Yamano, K.; Yasta, K.; Yoshida, R.
A;Title: The complete genome sequence of the Gram-positive bacterium Bacillus subtilis.
A;Acterian muber: Aciden Mullors and Accession: B68843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: 578238
A; Accession: 578238
A; Containing Aight atc.
A; Containing Aight accession: 578238
A; Containing Aight accession: 578238
A; Containing Aight accession: 578238
A; Residues: 1-471 cKOW>
A; Cross-references: EMBL: 267753; NID: 91185127; PIDN: CAA91720.1; PID: 91185237
A; Note: the nucleotide sequence was submitted to the EMBL Data Library, November 1995
C; Genetics:
A; Genetics:
A; Genetics:
C; Superfamily: photosystem II chlorophyll a-binding protein psbC
C; Keywords: chlorophyll; Chlorophyll
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Residues: 1-402 <KUN>
A;Cross-references: GB:Z99110; GB:AL009126; NID:g2633472; PIDN:CAB13005.1; PID:e1183168;
A;Experimental source: strain 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C;Accession: S78847
R;Kowallik, K.V.; Stoebe, B.; Schaffran, I.; Kroth-Pancic, P.; Freier, U.
Plant Mol. Biol. Rep. 13, 336-342, 1995
A;Title: The Chloroplast Genome of a chlorophyll a+c- containing Alga, Odontella sinensi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               photosystem II chlorophyll a-binding protein psbC - Odontella sinensis chloroplast N;Alternate names: photosystem II CP43 chlorophyll apoprotein C;Species: chloroplast Odontella sinensis C;Date: 17-Feb_1998 #sequence_revision 26-Feb-1998 #text_change 20-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary; nucleic acid sequence not shown; translation not shown A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 402;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 33; DB 2
Pred. No. 15;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   82.5%;
ilarity 87.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1:4|||||
235 LLAFTAAV 242
                                 SLLAFTAA 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 LMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

ö

Gaps

ö

Length 466; Indels

```
A;Reference number: 83551; MUID:93126122
A;Accession: 83551; MUID:93126122
A;Status: preliminary; nucleic acid sequence not shown
A;Residues: 1-524 CGON>
A;Cross-references: EMBL:217426; NID:965029; PIDN:CAA78999.1; PID:965030
C;Genetics:
A;Gene: RAP74
C;Keywords: DNA binding: transcription regulation
Query Match
C;Keywords: DNA binding: transcription regulation
C;Keywords: DNA binding: transcription regulation
Query Match
C;Keywords: DNA binding: transcription regulation
A;Genetics:
```

GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

August 23, 2002, 09:55:24; Search time 37 Seconds (without alignments) 9.418 Million cell updates/sec Run on:

US-08-854-825-34 40 1 SLMAFTAAV 9 Title: Perfect score: Sequence: BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

105224 seqs, 38719550 residues Searched:

105224 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_40:* Database : Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	P2664 h qenome po	h genome	h genome	h genome	h genome	h genome	emericell	~	Q00538 bacillus su	Q04870 xenopus lae	P26660 h genome po	ч	bos ti	lemna	lemna	lemna	bacil	P50083 saccharomyc	P52951 homo sapien	P48031 mus musculu	P34269 caenorhabdi	P17809 mus musculu				Q54155 shigella fl				3029	6809	П	P50328 bradyrhizob
SUMMARIES	ID	010	POLG_HCVH	POLG_HCVBK	POLG_HCVJA	POLG_HCVJT	POLG_HCVTW	DEWA_EMENI	PSBC_ODOSI	MMR_BACSU	T2FA_XENLA	POLG_HCVJ6	POLG_HCVJ8	NEU2_BOVIN	RBS2_LEMGI	RBS5_LEMGI	RBS6_LEMGI	ISCS_BACHD	YG4T_YEAST	GBX2_HUMAN	GBX2_MOUSE	YKH1_CAEEL	GTR1_MOUSE	VM21_YEAST	NCCY_ALCXX	DSBB_ECOLI	DSBB_SHIFL	BLO1_ECOLI	BRAD_PSEAE	LIVH_ECOLI	LIVH_SALTY	GPR3_HUMAN	- 1	NOD2_BRASN
	DB	П	-	П	7	٦	7	٦	-	-	П	П	٦	-	7	Н	-	-	-	-	7	-		-	٦	_	Н	-	Н	Н	7		-	-
	Length	3011	3011	3010	3010	3010	3010	135	471	466	524	3033	3033	166	177	177	177	375	199	348	348	484	492	77	95	176	176	276	307	308	308	330	330	337
	'	0.	0.	0.	0.	0.	0.	5	ū.	0.	5.	5.	ď.	0	0	0	0	0	.5	.5	.5	٠. د		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ф	Query	~	100	8	8	6	6	8	8	ĕ	77	7.		7,	7,	-	7	7	-	2	72	-	7	~	7	7	7	7	7	7	7	2	2	7
	Score	40	40	36	36	36	36	33	33	32	31	_	_	30	30	30	30	30	29	29	59	58	29	28	28	28	28	28	28	28	28	28	28	28
	Result No.		7	m	4	S	9	7	ထ	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29	30	31	32	33

	P31666 escherichia 001361 bos taurus					
HAIF_CHICK	YADE_ECOLI CPDE_BOVIN	YQ12_CAEEL YCF1_PINTH	RS20_PSEAE	SP22_MOUSE COXX_RHOSH	SSRA_CANFA	
1		- г				ı
345	409	1551 1756	91	180 284	286 296	
70.0	70.07	70.0	67.5	67.5	67.5	
28 28	7 7 8 8 7 8	28 28	27	27	27	
34 35	36 37	38 39	40 41	4 4 3 3	4 4 5	

ALIGNMENTS

POLG_HCVH

```
CAPSID PROTEIN (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROFEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease. INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65F8C9447FCE5AF9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATP (POTENTIAL)
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
N-L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
InterPro; IPR001490; HCV_NS4b.
InterPro; IPR002869; HCV_NS5a.
InterPro; IPR002522; HCV_RGAP.
InterPro; IPR002521; HCV_cops1d.
InterPro; IPR002521; HCV_core.
InterPro; IPR002521; HCV_core.
InterPro; IPR002521; HCV_core.
InterPro; IPR001650; HCV_core.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_NS3; 1.
Pfam; PF01539; HCV_NS3; 1.
Pfam; PF01504; HCV_NS3; 1.
Pfam; PF01001; HCV_NS4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00271; helicase_C; 1. ProDom; PD186062; HCV_NS1; 1. SMART; SMO0492; HELICC3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2789
\; 327197 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2789 278
3011 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
             ODARAGO BRAKKWA KAMAMA DOBA BA DOBA BA
```

Ouery Match 100.0%; Score 40; DB 1; Length 3011; Best Local Similarity 100.0%; Pred. No. 1.1; Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 1 SLMAFTAAV 9 | | | | | | | | | | | | Db 1789 SLMAFTAAV 1797

RESULT

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch). C. I- FUNCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.

C. I- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.

C. I- FUNCTION: NS4A.NS4A.NS4A.NS4B.NS5A.ND NS5A-NS5B.

C. I- FUNCTION: NS4A.NS4A.NS4B.NS5A.NS AND NS5A-NS5B.

C. I- FUNCTION: NS5A SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.

C. I- FUNCTION: NS5B IS A RNA-DEPROBENDET RNA POLYMERASE THAT PLAYS AN ESSENTIAL ROLE IN THE VIRUS REPLICATION.

C. I- FUNCTION: NS5B IS A RNA-DEPROBENDET RNA POLYMERASE THAT PLAYS AN ESSENTIAL ROLE IN THE VIRUS REPLICATION.

C. I- SCHITTIT AND THE VIRUS REPLICATION.

C. I- SUBJUIT: THE VIRION OF THIS VIRUS IS A NOCLECCARSID COVERED BY A LIPOPROTEIN ENVELOPE. CONSISTS OF TWO PROTEINS: E1

AND E2. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN CAND MRNA.

C. I- POM: THE STRUCTURAL PROTEINS C, E1 AND E2 ARE PRODUCED BY PROTEINS: THE STRUCTURAL PROTEINS C, E1 AND E2 ARE PRODUCED BY PROTEINS: THE NS3 PROTEASE BELONGS TO PEPTIDASE FAMILY S29. 01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 24). Last sequence update)
01-Groff (Rel. 26). Last annotation update)
Genome polyprotein (Rel. 40). Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (RC 3.4.21.98); Nonstructural protein NS48 (P4); Nonstructural protein NS48 (P57); Nonstructural protein NS58 (P56); (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)]. X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657.
MEDLINE=97331322; PubMed=9187654;
Yao N., Hesson T., Cable M., Hoop Z., Kwong A.D., Le H.V., Weber P.C.;
"Structure of the hepatitis C virus RNA helicase domain.";
Nat. Struct. Biol. 4:463-467(1997). oligonucleotide: the crystal structure provides insights into the mode X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657.
MEDLINE=9815431; PubMed=9493270;
Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A.,
Murcko M.A., Lin C., Caron P.R.;
"Hepatitis C virus NS3 RNA helicase domain with a bound Hepatitis C virus (isolate H) (HCV). Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; "Genomic structure of the human prototype strain H of hepatitis C virus: comparison with American and Japanese isolates."; Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991). NEGUENCE FROM N.A. MEDLINE-22052256; Pubmed-1658800; Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasoff M., PRT; 3011 AA. EMBL; M67463; AAA45534.1; -. of unwinding."; Structure 6:89-100(1998). STANDARD; PIR, A36814; GNWVCH.
PDB; 1HEI; 25-NOV-98
PDB; 1A1V; 16-FEB-99.
MEROPS; S29. 001; -NCBI_TaxID=11108; Hepacivirus

```
Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REMOVED FROM CAPSID PROTEIN C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROTEASE/HELICASE NS3.
NONSTRUCTURAL PROTEIN NS4A.
NONSTRUCTURAL PROTEIN NS4B.
NONSTRUCTURAL PROTEIN NS5B.
NONSTRUCTURAL PROTEIN NS5B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      772CBB29CCD94753 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NONSTRUCTURAL PROTEIN NS2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENVELOPE GLYCOPROTEIN E1. ENVELOPE GLYCOPROTEIN E2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CELLULAR AMINOPEPTIDASE. CAPSID PROTEIN C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED (GLCNAC
N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED (N-LINKED (N-LINK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DECH BOX
            InterPro; IPR002531; HCV_NS1.
InterPro; IPR002531; HCV_NS2.
InterPro; IPR001409; HCV_NS3.
InterPro; IPR001490; HCV_NS3.
InterPro; IPR001490; HCV_NS4.
InterPro; IPR002686; HCV_NS5a.
InterPro; IPR0025868; HCV_Capsid.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR001650; Helicase_C.
Pfam; PP01543; HCV_Capsid; I.
Pfam; PP01542; HCV_Capsid; I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                 PF01539; HCV_ENY; 1.
PF01560; HCV_NS1; 1.
PF01538; HCV_NS2; 1.
PF012007; HCV_NS3; 1.
PF01006; HCV_NS4a; 1.
PF01006; HCV_NS4b; 1.
PF01506; HCV_NS4b; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        327142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SM00492; HELICC3; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 448
476
476
476
532
532
550
556
576
623
645
3011 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMART;
                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                         Pfam;
                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                    Pfam;
                                                                                                                                                                                                                                                                                                                                                                         Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                   etam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
```

ö Gaps ; 0 100.0%; Score 40; DB 1; Length 3011; 100.0%; Pred. No. 1.1; tive 0; Mismatches 0; Indels (Conservative Query Match Best Local Similarity 9; Conserve

PDB; 1A1Q; 25-MAR-98

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch). 01-707 (Rel. 40, Last annotation update)
16-077-2001 (Rel. 40, Last annotation Elevatoria (GP68)
16-077-2001 (NRS): Protein P7; Nonstructural protein NS4 (P49): Nonstructural protein NS4 (P49; Nonstructural protein NS5 (P56); Nonstr -i- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.

-i- SUBDNIT: THE VIRION OF THIS VIRUS IS A NUCLECCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: SEQUENCE FROM N.A.
MEDLINE=91140698; PubMed-1847440;
Takamizawa A., Mori C., Fuke I., Manabe S., Murakami S., Fujita J.,
Takamizawa A., Mori C., Foke I., Okayama H.;
Onishi E., Andoh T., Yoshida I., Okayama H.;
"Structure and organization of the hepatitis C virus genome isolated MEDLINE-97015088; PubMed-8861916; Love R.A., Parge H.E., Wickersham J.A., Hostomsky Z., Habuka N., Moomaw E.W., Adachi T., Hostomska Z.; The crystal structure of hepatitis C virus NS3 proteinase reveals trypsin-like fold and a structural zinc binding site."; Cell 87:331-342(1996). X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.
MEDLINE-98227846; PubMed-9568891;
Yan Y., Li Y., Munshi S., Sardana V., Cole J.L., Sardana M.,
Steinkuehler C., Tomei L., de Francesco R., Kuo L.C., Chen Z.;
"Complex of NS3 protease and NS4A peptide of BK strain hepatitis C
virus: a 2.2-A resolution structure in a hexagonal crystal form.";
Protein Sci. 7:837-847(1998).
-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE
HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION. PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA. MEDLINE-96235224; PubMed-8647104;
Borcwski P., Heiland M., Oehlmann K., Becker B., Korneteky L.;
"Non-structural protein 3 of hepatitis C virus inhibits
phosphorylation mediated by cAMP-dependent protein kinase.";
Eur. J. Biochem. 237:611-618(1996). -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29. K-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS) OF 1027-1215. 3010 AA. (Rel. 23, Created) Virol. 65:1105-1113(1991). EMBL; M58335; AAA72945.1; -. PIR; A38465; GNWVTC. SEQUENCE OF 1487-1500 from human carriers. NCBI_TaxID=11105; 01-AUG-1992 Hepacivirus POLG_HCVBK P26663; RESULT 3 POLG_HCVBK Pred. No.

77.88;

```
CABSID PROTEIN (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA DIRECTED RNA POLYMERASE (POTENTIAL).
RNA DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F8422D5ECCFDFD9C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
N-L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                               InterPro; IPR001410; DEAD.
InterPro; IPR002531; HCV_NS1.
InterPro; IPR002531; HCV_NS2.
InterPro; IPR004109; HCV_NS2.
InterPro; IPR001490; HCV_NS4.
InterPro; IPR001490; HCV_NS4b.
InterPro; IPR002166; HCV_NS5b.
InterPro; IPR002166; HCV_RGAP.
InterPro; IPR002512; HCV_core.
InterPro; IPR002512; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     327189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HCV_NS5a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HCV_core;
HCV_env; 1
HCV_NS1; 1
HCV_NS2; 1
HCV_NS3; 1
HCV_NS4a;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA;
                                                    MEROPS; S29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01001; H
Pfam; PF01506; H
Pfam; PF00998; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF02907;
PF01006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF01542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF01560;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D-structure.
PDB; 1JXP;
PDB; 1NS3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                 MEROPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam;
DORAN DORAN
```

Length 3010;

DB 1;

90.0%; Score 36;

Query Match

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license gireement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                       01-A0G-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3 4.22-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3 4.21-98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Japanese) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FIGURE THE SHALL PROTEINS NS2B, NS2B, NS4B AND NS4B ARE

-!- FUNCTION: THE SHALL PROTEINS NS2B, NS2B, NS4B AND NS5 MAY PLAY A FOLE IN THE VIRAL RNA REPLICATION.

-!- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.

-!- SUBUNIT: THE VIRION OF THIS VIRED IS A NUCLEOCAPSID COVERED BY A LIPOPRECIEN ENVELOPEE. THE ENVELOPEE CONSISTS OF TWO PROTEINS:

PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN CAND MARKA.
                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=91192160; PLUMPed=1849488;
Kato N., Hijkata M., Nakagawa M., Ootsuyama Y., Muraiso K., Ohkoshi S., Shimotohno K., "Molecular structure of the Japanese hepatitis C viral genome."; FEBS Lett. 280:325-328(1991).
                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-91088550; PubMed-2175903;
Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi S.,
Sugimura T., Shimotobho K.
"Molecular cloning of the human hepatitis C virus genome from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29
                       Indels
                         ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Japanese patients with non-A, non-B hepatitis.";
Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990)
                                                                                                                                                                                          PRT; 3010 AA
                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_NS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; D90208; BAA14233.1; -.
                         7; Conservative
                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DISCUSSION OF SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR, A39253; GNWVCJ.
HSSP; P26663; 1JXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR004109;
InterPro; IPR00745;
InterPro; IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR002868;
                                                                                 ||||||||:
| 1789 SLMAFTASI 1797
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=11116;
                                                            1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepacivirus,
                                                                                                                                                                                          POLG_HCVJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                            P26662
                                                                                                                                                       RESULT 4
POLG_HCVJA
                                                                                             qq
                                                            ŏ
```

```
PF01542;
PF01539;
PF01560;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF01538;
PF02907;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF01543;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF01006;
                                                                                      Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
÷
                                                                                                                                                                                  CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN C (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                            Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Brovelope protein; Helicase; APP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease: INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                  SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                   ( POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA993794F46DB185 CRC64;
                                                                                                                                                                                                                                                                 RELAY SYSTEM (BY
RELAY SYSTEM (BY
RELAY SYSTEM (BY
                                                                                                                                                                            CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                         (GLCNAC. . .
                                                                                                                                                                                                                                                                                                                                                                                                         GLCNAC. . .
                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                        N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                  GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                                                  (GLCNAC
                                                                                                                                                                                                                                                                                                                                                  (GLCNAC
                                                                                                                                                                                                                                                                                         (POTENTIAL).
                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 8.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2; Mismatches
                                                                                                                                                                                                                                                           POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 36;
                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                 DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                       -LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                LINKED
                                                                                                                                                                                                                                                                   CHARGE
                                                                                                                                                                                                                                                                                   CHARGE
     InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
InterPro; IPR001650; Helicase_C.
                                                            Pfam; PF01560; HCV_NS1; 1.
Pfam; PF01538; HCV_NS2; 1.
Pfam; PF012907; HCV_NS3; 1.
Pfam; PF01006; HCV_NS4s; 1.
Pfam; PF01001; HCV_NS4b; 1.
Pfam; PF01506; HCV_NS4b; 1.
Pfam; PF00199; HCV_RRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOLG HCVJT

ID POLG_HCVJT STANDARD;

AC 000269;

DT 01-APR-1993 (Rel. 25, Created)
                                     PF01543; HCV_capsid; 1.
PF01542; HCV_core; 1.
PF01539; HCV_env; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90.08;
77.88;
                                                                                                                                     SM00492; HELICG3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA; 327017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1789 SLMAFTASI 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                 ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                      SMART;
                                                                                                                                                                                                                            CHAIN
CHAIN
CHAIN
CHAIN
                                       Pfam;
                                               Pfam;
                                                     Pfam;
                                                                                                                                                                                    CHAIN
                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
```

```
19—167—193 (Rel. 2) Last sequence update)

20 Genome polypotocian [Contains: Capal protein (Core protein) (F22);

21 Genome polypotocian [Contains: Capal protein (Core protein EZ)

22 Genome polypotocian [Contains: Capal protein (Core protein EZ)

23 FORDER (CORE) (CAPO) (NSI); Protein P7, Novalope glycoprotein EZ

24 A 22. A); Protein EZ (CAPO) (Rel. 40); Protein P7, Novalope glycoprotein EZ (CAPO)

25 FORDER (CAPO) (NSI); Protein P7, Novalope glycoprotein EZ

26 FORDER (CAPO) (NSI); Protein P7, Novalope glycoprotein EZ

27 FORDER (CAPO) (NSI); Protein P7, Novalope glycoprotein EZ

28 FORDER (CAPO) (NSI); Protein P7, Novalope Glycope (CAPO)

28 FORDER (CAPO) (NSI); Protein P7, Novalope (CAPO) (NSI); Protein P7, Novalope (CAPO)

27 FORDER (CAPO) (NSI); Protein P7, Novalope (CAPO) (NSI); Protein P7, NSI); Protein P7, NS
```

```
ö
                                                                                       CAPSID PROTEIN ( POTENTIAL).
MATRIX PROTEIN ( POTENTIAL).
MAJOR ENVELOPE PROTEIN E ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 ( POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 ( POTENTIAL).
PROTEASE/HELICASE NS3 ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B ( POTENTIAL).
RNA-DIRECTED RNA POLYMERASE ( POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLG_HCVTW STANDARD; PRT; 3010 AA.
POLG_HCVTW STANDARD; PRT; 3010 AA.
PO1946.
01-APR-1993 (Rel. 25, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation Edenoted Protein PT, Protein PT, Protein PT, Protein PT, Protein PT, Protein PT, Protein NSA (PS); Nonstructural protein NSA (PS); Nonstructural protein NSSA (PS); Nonstructural protein NSSA (PS); Nonstructural protein NSSB (P66) (P70) (RNA-directed RNA POLymerase) (EC 2.7.7.48)].
Envelope protein; Helicase; ATP-binding;
protein; Hydrolase; Serine protease.
REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                               SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
MEDLINE-92230206; PubMed-1314449;
Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90.0%; Score 36; DB 1; Length 3010; 77.8%; Pred. No. 8.3; 1ive 2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MW; 94A1C77435D642BB CRC64;
                                                                                                                                                                                                                                                                                                                        CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                         CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED GLCUAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                      ATP (POTENTIAL)
DECH BOX.
                                                                                                                                                                                                                                                                                                           POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (
N-LINKED (
N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED (N-LINKED (N-LINKED)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
Core protein; Coat protein; E
Transmembrane; Nonstructural
INIT_MET 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            326573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1789 SLMAFTASI 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=31645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                          1083
1107
1165
1230
1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepacivirus
                                                                                                                                                                                                                                                        CHAIN
CHAIN
TRANSMEM
ACT_SITE
ACT_SITE
NP_BIND
SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                CHAIN
                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
KKKK

SOLLICIAL SELLICATION SOLUTION SO
```

```
THOROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

1. TATALYTIC SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

1. NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

1. CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 postition, Cys or Thr in P1 and Ser or Ala in P1.

2. LIPOPROTEIN ENVELOPE. THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:

2. PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.

2. SIMILARITY: THE PROTESE BELONGS TO PEPTIDASE FAMILY S29.

3. This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its the European Bioinformatics as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/correct of the entities requires a license effect.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002166; HCV_Gapsid.

R InterPro; IPR002522; HCV_capsid.

R InterPro; IPR002521; HCV_core.

R InterPro; IPR002521; HCV_core.

R InterPro; IPR002521; HCV_core.

R InterPro; IPR002521; HCV_core.

R InterPro; IPR001650; Helicase_C.

R Ffam; PF01543; HCV_core; 1.

R Pfam; PF01543; HCV_core; 1.

R Pfam; PF01500; HCV_NS2; 1.

R Pfam; PF01000; HCV_NS2; 1.

R Pfam; PF01000; HCV_NS3; 1.

R Pfam; PF01000; HCV_NS4; 1.

R Pfam; PF01001; HCV_NS4; 1.

R Pfam; PF00998; HCV_NS4; 1.

R Pfam; PF0098; HCV_NS4; 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CELLULAR AMINOPEPTIDASE.

CORD PROTEIN (POTBWIAL).

MATRIX PROTEIN (POTBWIAL).

MAJOR ENVELOPE PROTEIN E (POTBWIAL).

MOSTRUCTURAL PROTEIN NSI/E2 (POTBWIAL).

NONSTRUCTURAL PROTEIN NS2 (POTBWIAL).

PROTEASE/HELICASE NS3 (POTBWIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
The Taiwanese hepatitis C virus genome: sequence determination and mapping the 5' termini of viral genomic and antigenomic RNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BY SIMILARITY).
(BY SIMILARITY).
(BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . .) (POTENTIAL).
                       mapping the 5' termini of viral genomic and antigenomic RNA.";
Virology 188:102-113(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHARGE RELAY SYSTEM (E
CHARGE RELAY SYSTEM (E
CHARGE RELAY SYSTEM (E
ATP (POTENTIAL).
DECH BOX.
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M84754; -; NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         729
1006
11615
11862
2013
3010
369
1107
11165
11165
11165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR002531;
InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR004109;
InterPro; IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001490;
InterPro; IPR002868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR; A40244; GNWVTW.
HSSP; P26663; 1JXP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEROPS; $29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116
192
384
730
1007
1616
1863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                347
1083
1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEROPS; U39.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
```

```
Transmembrane.
                                                                                                                                                                                                                                                                                                         01-FEB-1996 (
01-FEB-1996 (
16-OCT-2001 (
                                                                                                                                                                                                                                            RESULT 8
PSBC_ODOSI
ID PSBC_ODOSI
                                                                                                                                                                                                                                                                                                                                                                                                           Chloroplast
                CHAIN
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
     SIGNAL
                                                                                                                                                                                                                                                                                             P49472;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MMR_BACSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
   FF
                                                                                                                                                                                             qq
                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HA HA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                            ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stringer M.A., Timberlake W.E., ^{\prime} "dewA encodes a fungal hydrophobin component of the Aspergillus spore
                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE SPECIFICITY: SPORE WALL.
DEVELOPMENTAL STAGE: ACCUMULATES PREFERENTIALLY DURING ASEXUAL
                                                                             (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                         (POTENTIAL)
(POTENTIAL)
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                (POTENTIAL)
                                                                                                                                               POTENTIAL)
                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                            .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Emericella nidulans (Aspergillus nidulans).
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Eurotiales; Trichocomaceae; Emericella.
                                                                                                                                                                                                                                                                                                                                                                         Score 36; DB 1; Length 3010;
Pred. No. 8.3;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: BELONGS TO THE FUNGAL HYDROPHOBIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                           CRC64:
                                                                                  GLCNAC. . .
                                                                                                                                                                                                                                                                                                            INKED (GLCNAC. . . . AAD267D55CDFE215
                                                                                 (GLCNAC.
                                                                                                                                            (GLCNAC.
                                (GLCNAC.
                                                                                                                                GLCNAC.
                                                                                                                                                                                                            GLCNAC.
                                                                                                                                                                                                                                              (GLCNAC.
                                                                (GLCNAC.
                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                GLCNAC.
                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-007-1996 (Rel. 34, Created)
01-00T-1996 (Rel. 34, Last sequence update)
01-00T-1996 (Rel. 34, Last annotation update)
Spore-wall fungal hydrophobin DEWA precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135 AA.
N-LINKED
N-L
                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=FGSC 4;
MEDLINE=95379492; PubMed=7651135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS00956; HYDROPHOBIN; 1. Cell wall; Glycoprotein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR001338; Hydrophobin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mol. Microbiol. 16:33-44(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01185; Hydrophobin; 1.
SMART; SM00075; HYDRO; 1.
                                                                                                                                                                                                                                                                                                                                                                         90.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                          327047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; U07935; AAC13762.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
7; Conservē
                                                                                                                                                                                                                                                                                                                                                                                                                                                            |||||||||::
|1789 SLMAFTASI 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                       1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=5072;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPORULATION.
                                                                                                                                                                                                                                                                         2240
2529
2788
3010
                                                                                                                                            532
540
556
576
623
645
2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEWA_EMENI
P52750;
                                                                                                                                                         CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                             CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
 CARBOHYD
                                CARBOHYD
                                                                             CARBOHYD
                                                                                            CARBOHYD
                                                                                                             CARBOHYD
                                                                                                                            CARBOHYD
                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEWA_EMENI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   wall
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mendel; 2635; ODOSi;psbC;1.
InterPro; IPRO00932; PSII.
Pfam: PF00421; PSII; 1.
Photosynthesis; Photosystem II; Thylakoid; Chlorophyll; Chloroplast;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-FEB-1996 (Rel. 33, Created)
1-FEB-1996 (Rel. 33, Last sequence update)
16-OCT-2001 (Rel. 40, Last amoutation update)
Photosystem II 44 kDa reaction center protein (P6 protein) (CP43).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Plant Mol. Biol. Rep. 13:336-342(1995).
-1- FUNCTION: THE 43 kDa PROTEIN (P6) IS A COMPONENT OF THE CORE PHOTOSYSTEM II. IT IS A CHLOROPHYLL BINDING PROTEIN.
-1- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN; CHLOROPLAST THYLAROID MEMBRANE.
-1- SIMILARITY: BELONGS TO THE PSBB / PSBC FAMILY.
                                                 N-LINKED (GLCNAC. . .) (POTENTIAL). F3B364748293A205 CRC64;
  POTENTIAL.
SPORE-WALL FUNGAL HYDROPHOBIN DEWA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; stramenopiles; Bacillariophyta; Coscinodiscophyceae; Biddulphlophycidae; Eupodiscales; Eupodiscaceae; Odontella.
                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82.5%; Score 33; DB 1; Length 471; 77.8%; Pred. No. 6.3;
                                                                                                                                              Score 33; DB 1; Length 135;
Pred. No. 1.9;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             471 AA; 51878 MW; 340A424CE2AD2CFC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                          471 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MMR_BACSU STANDARD; PRT; 466 AA Q00538; 101-APR-1993 (Rel. 25, Created) 01-APR-1993 (Rel. 25, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    466 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1; Mismatches
18 PC
135 SF
60 N-
13201 MW;
                                                                                                                                              82.5%;
87.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; 267753; CAA91720.1; -.
                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
  1
19
19
135 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Odontella sinensis.
                                                                                                                                              Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ||| ||||:
SLMGFTAAL 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                            1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=2839;
                                                                                                                                                                                                                                                1 SLMAFTAA 8
```

ω

```
RESULT 11
POLG_HCVJ6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NA KARARA KARANA KARANA
                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                   SubtiList; BG10420; mmr. InterPro; IPR03562; sub_transporter. Pfam; PP00083; sugar_tr; 1. Antibiotic resistance; Transmembrane; Transport; Complete proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xenopus laevis (African clawed frog).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Amphibia, Batrachia, Anura, Mesobatrachia, Pipoidea, Pipidae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-1994 (Rel. 28, Last sequence update)
01-CCT-1996 (Rel. 34, Last annotation update)
Transcription initiation factor IIF, alpha subunit (TFIIF-alpha)
(Transcription initiation factor RAP74).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1; Length 466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7F77702100736799 CRC64;
                 Methylenomycin A resistance protein (MMR peptide).
                                                                       Bacteria; Firmicutes; Bacillus/Clostridium group;
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               524 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 32; DB 1
Pred. No. 11;
1; Mismatches
                                                                                    Bacillus/Staphylococcus group; Bacillus.
NCBI_TaxID=1423;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1994 (Rel. 28, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; X66121; CAA46908.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80.0%;
ilarity 87.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; 299123; CAB15784.1; -. PIR; S22742; YTBSMA.
Subtilist; BG10420; mmr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Xenopodinae; Xenopus.
NCBI_TaxID=8355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          166 AA;
                                                       Bacillus subtilis.
                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |:||||||
236 LVAFTAAV 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 LMAFTAAV 9
                                                                                                                                                                     STRAIN-168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T2FA_XENLA
Q04870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRANSMEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T2FA_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ô
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce) or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein E2
Envelope glycoprotein E1 (GP2) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS5A (P56); Nonstructural protein
NS4B (P57); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Elucidation of three putative structural subdomains by comparison of primary structure of Xenopus and human RAP74.";
Nucleic Acids Res. 20:6736-6736(1992).
-!- FUNCTION: TFIIF IS A GENERAL TRANSCRIPTION INITIATION FACTOR THAT BINDS TO RNA POLYMERAEE II AND HELPS TO RECRUIT IT TO THE INITIATION COMPLEX IN COLLABORATION WITH TFIIB. IT PROMOTES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus (isolate HC-J6) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                             -:- SUBUNIT: HETERODIMER OF AN ALPHA AND A BETA SUBUNIT.
-:- SUBCELLULAR LOCATION: Nuclear.
-:- SIMILARITY: TO OTHER TRANSCRIPTION FACTOR IIF, ALPHA SUBUNIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                  Gong D.-W., Hasegawa S., Wada K., Roeder R.G., Nakatani Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 524;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transcription regulation; DNA-binding; Nuclear protein. SEQUENCE 524 AA; 58699 MW; 8CF3A74A3BF77BB0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 31; DB 1;
Pred. No. 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT; 3033 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
SEQUENCE FROM N.A.
MEDLINE=93126122; Pubmed=1480494;
                                                                                                                                                                                                                                                                                        TRANSCRIPTION ELONGATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           77.5%;
87.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; Z17426; CAA78999.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 87.5.
7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S35551; S35551.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSFAC; T02171; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=11113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11111 14
27 SLMAFNAA 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 SLMAFTAA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLG_HCVJ6
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CELULAR AMINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN C (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEINS-/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
 SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; APP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
            LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                  SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ·
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BOX
                                                                                                                                                                                                                                                         InterPro; IPR002531, USA, NE.
InterPro; IPR002531, HCV_NS1.
InterPro; IPR002531, HCV_NS2.
InterPro; IPR001045, HCV_NS3.
InterPro; IPR001045, HCV_NS4B.
InterPro; IPR001900; HCV_NS4B.
InterPro; IPR0012166, HCV_NS5B.
InterPro; IPR002532; HCV_Capsid.
InterPro; IPR002532; HCV_Capsid.
InterPro; IPR002532; HCV_Capsid.
InterPro; IPR002532; HCV_Capsid.
InterPro; IPR001551; HCV_Capsid.
InterPro; IPR001551; HCV_Capsid.
InterPro; IPR01543; HCV_Capsid; 1.
Pfam; PF01543; HCV_Capsid; 1.
Pfam; PF01549; HCV_NS1; 1.
Pfam; PF01538; HCV_NS2; 1.
Pfam; PF01001; HCV_NS3; 1.
Pfam; PF01001; HCV_NS4B; 1.
Pfam; PF01001; HCV_NS5B; 1.
Pfam; PF01001; HCV_NS5B; 1.
Pfam; PF01001; HCV_NS5B; 1.
Pfam; PF01001; HCV_NS5B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DECH
                                                                                                                                                                               EMBL; D00944; BAA00792.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3033
369
11087
11111
11124
1124
11324
1233
209
234
417
4423
4423
4430
534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1010
1619
1866
2017
                                                                                                                                                                                                                                                InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                              PIR; JQ1303; JQ1303.
HSSP; P27958; IHEI.
                                                                                                                                                                                                                      MEROPS; S29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
192
384
734
1011
1620
1867
2018
347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-406-1992 (Rel. 23, Last sequence update)
16-027-2001 (Rel. 40, Last annotation update)
16-031-2001 (Rel. 40, Last annotation update)
16-031-2001 (Rel. 40, Rel. 40, Rel.
                                                                                                                                                                                                                                                               Gaps
                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                      (POTENTIAL)
                                                           (POTENTIAL)
                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                        Length 3033;
                                                                                                                                                                                                                      77.5%; Score 31; DB 1; Length 303
66.7%; Pred. No. 1.18+02;
.ive 3; Mismatches 0; Indels
                                                                                                                                                               F957F5C1A273BE9E CRC64;
                                                                                                   (GLCNAC. . .)
                                                                              (GLCNAC.
                                                                                                                    (GLCNAC.
                                      (GLCNAC.
                     (GLCNAC.
                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT; 3033 AA.
                   N-LINKED (
                                                                                                                                                               329165 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; D10988; BAA01761.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR001410; DEAD.
                                                                                                                                                                                                                                                                 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR, A40250; GNWVJ8.
HSSP; P27958; 1HEI.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                            |:|||:||:
1793 SMMAFSAAL 1801
                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=11115;
                                                                                                                                                                                                                                                                                                       1 SLMAFTAAV 9
542
558
578
627
649
1091
2038
3033
                                                                                                                                                                                                                                                                                                                                                                                                                                               POLG_HCVJ8
P26661;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepacivirus
                 CARBOHYD
CARBOHYD
CARBOHYD
  CARBOHYD
                                                                                                                                        CARBOHYD
                                                                              CARBOHYD
                                                                                                   CARBOHYD
                                                                                                                       CARBOHYD
                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                              POLG_HCVJ8
                                                                                                                                                                                                                                                                                                                                                g
ŏ
```

[Contains: Arg

166 AA

PRT;

STANDARD;

01, Created)

```
21-JUL-1986 (Rel. 01, Last sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
Vasopressin, neurophysin 2-copeptin precursor [Contains
vasopressin; Neurophysin 2 (Neurophysin-II); Copeptin]
                                                              21-JUL-1986
21-JUL-1986
                                         NEU2_BOVIN
P01180;
                              NEU2_BOVIN
                                          Pfam; PF01535; NCV_NS1; 1.
Pfam; PF01556; NCV_NS1; 1.
Pfam; PF01586; NCV_NS2; 1.
Pfam; PF012007; NCV_NS3; 1.
Pfam; PF01006; NCV_NS4s; 1.
Pfam; PF01001; NCV_NS4s; 1.
R Pfam; PF00271; Nellicase_c, 1.
R Pfam; PF00271; Nellicase_c, 1.
R Probom; PD186062; NCV_NS1; 1.
R Probom; PD186062; NCV_NS1; 1.
W Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; MP-binding; MR-Core protein; Glycoprotein; Envelope protein; Helicase; ATP-binding; MR-Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

"Transmembrane; Nonstructural protein; REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                         CELLULAR AMINOPERTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
NONSTRUCTURAL PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS48 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                           RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                              CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL). (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INKED (GECNAC. . .) (POT
1A173E7E3381FD1A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                           ATP (POTENTIAL)
DECH BOX.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
              InterPro; IPRO04109; HCV_NS3
InterPro; IPR000745; HCV_NS4a.
InterPro; IPR00149; HCV_NS4b.
InterPro; IPR002668; HCV_NS4b.
InterPro; IPR002523; HCV_CapSid.
InterPro; IPR002521; HCV_CapSid.
InterPro; IPR002521; HCV_CapSid.
InterPro; IPR002519; HCV_CapSid.
InterPro; IPR002519; HCV_CapSid.
                                                                                                                 PF01543; HCV_capsid; 1.
PF01542; HCV_core; 1.
PF01539; HCV_env; 1.
          HCV_NS2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      330177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2038 203
2359 235
2811 281
3033 AA;
                                                                                                                                                                                                                                                                                                   CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                              ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                    Pfam; |
Pfam; |
                                                                                                                                        Pfam;
```

```
SEQUENCE OF 32-126.
MEDLINE=76135572; PubMed=1252249;
Wuu T.-C., Crumm S.E.;
Whith a reinvestigation.";
Blochem. Biophys. Res. Commun. 68:634-639(1976).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      du Vigneaud V., Lawler H.C., Popenoe E.A.;
"Enzymatic cleavage of glycinamide from vasopressin and a proposed structure for this pressor-antidiuretic hormone of the posterior pitultary.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chauvet M.-T., Chauvet J., Acher R.; "The neurohypophysial hormone-binding protein: complete amino-acid sequence of ovine and bovine MEL-neurophysins."; Eur. J. Biochem. 69:475-485(1976).
Bos taurus (Bovine).
Sukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                           The neurohypophyseal hormones vasopressin and oxytocin. Precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ruppert S., Scherer G., Schutz G.; "Recent gene conversion involving bovine vasopressin and oxytocin precursor genes suggested by nucleotide sequence."; Nature 308:554-557(1984).
                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE-87026235; Pubmed=3768139;
Rehbein M., Hillers M., Mohr E., Ivell R., Morley S., Schmale H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-82125432; PubMed-6276766;
Land H., Schutz G., Schmale H., Richter D.;
"Nucleotide sequence of cloned cDNA encoding bovine arginine
vasopressin-neurophysin II precursor.";
Nature 295:299-303(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-88076962; PubMed=3318825; Uardanary T.; Merman S., Breslow E., Chait B.T., Chaudhary T.; Partial assignment of disulfide pairs in neurophysins."; Biochem. Biophys. Res. Commun. 148:827-833(1987).
                                                                                                                                                                                                                                                                                                                                                                                        structure, synthesis and regulation.";
Biol. Chem. Hoppe-Seyler 367:695-704(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY SEQUENCE (FETAL NEUROPHYSIN 2).
MEDLINE-76118292; PubMed-1248642;
Chauvet M.-T., Chauvet J., Acher R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Acher R., Chauvet J.; "The structure of bovine vasopressin."; Biochim. Biophys. Acta 12:487-488(1953).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Am. Chem. Soc. 75:4880-4881(1953)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=84168167; PubMed=6709064;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 32-126.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 32-126.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SECUENCE OF 20-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 20-28
                                                                                                                                                  NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                          Richter D.;
```

ö

Gaps

;

Length 3033; Indels

Score 31; DB 1; Le Pred. No. 1.1e+02; 3; Mismatches 0;

77.58; 66.78;

6; Conservative

Query Match Best Local Similarity Matches 6; Conserv

1793 SMMAFSAAL 1801

g

SLMAFTAAV 9

Н

ò

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ROSE J.P., Wu C. K., HSIGO C.-D., Breslow E., Wang B.-C.,
"Crystal structure of the neurophysin-oxytocin complex.";
"At Struct. Biol. 3:163-168(1986).
-!- FUNCTION: NEUROPHYSIN 2 SPECIFICALLY BINDS VASOPRESSIN.
-!- FUNCTION: VASOPRESSIN HAS A DIRECT ANTIDIURETIC ACTION ON THE RIDNEY, IT ALSO GAUSES VASOCONSTRICTION OF THE PERIPHERAL VESSELS.
-!- MISCELLANEOUS: FETAL NEUROPHYSIN IS THE MAJOR NEUROPHYSIN PRESENT IN THE NEUROPHYSIN OF 7 TO 9 MONTH FETUSES & ITS SEQUENCE APPEARS TO BE IDENTICAL WITH THAT OF THE ADULT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS; PRO0831; NEUROPHYSIN.
Prodom; PD001676; Neurhypophys_horm; 1.
SMART; SM00003; NH; 1.
PROSITE; PS00264; NEUROHYPOPHYS_HORM; 1.
Hormone; Hypothalamus; Amidation; Cleavage on pair of basic residues;
Vasoconstrictor; Glycoprotein; Signal; 3D-structure.
                                                                                                                                                                                                                                                                                                                  MEDLINE=91239543; PubMed=2034668;
Chen L.Q., Rose J.P., Breslow E., Yang D., Chang W.-R.,
Furey W.F. Jr., Sax M., Wang B.-C.,
"Crystal structure of a bovine neurophysin II dipeptide complex at
2.8 A determined from the single-wavelength anomalous scattering
signal of an incorporated lodine atom."
                                                                DISULFIDE BONDS OF NEUROPHYSIN 2.
MEDLINE=73044843; PubMed=4564211;
Schlesinger D.H., Frangione B., Walter R.;
"Covalent structure of bovine neurophysin-II: localization of the disulfide bonds.";
 'Foetal bovine MSEL-neurophysin: comparison with adult homologous
                                                                                                                                                                                                                                                                                                   X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS) OF NEUROPHYSIN 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF NEUROPHYSIN 2
                                                                                                                                                                                                                                               "A new glycopeptide in pig, ox and sheep pituitary.";
Biochem. Biophys. Res. Commun. 87:1006-1010(1979).
                                                                                                                                                          Proc. Natl. Acad. Sci. U.S.A. 69:3350-3354(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                               Proc. Natl. Acad. Sci. U.S.A. 88:4240-4244(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ARG-VASOPRESSIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NEUROPHYSIN
COPEPTIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; A01442; NVB02.
PIR; A29724; A29724.
PIR; S09580; A29580.
PDB; 2DNZ; IG-FEB-99.
FDB; INPO; 12-FEB-97.
InterPro; IRR000981; Neurhypophys_horm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE=Pituitary;
MEDLINE=96163436; Pubmed=8564543;
                                                                                                                                                                                           SEQUENCE OF 128-166.
MEDLINE=79231438; PubMed=465021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; M25645; AAA30806.1; -. EMBL; V00113; CAA23447.1; -. EMBL; X00503; CAA25195.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF00220; hormone4; 1
Pfam; PF00184; hormone5; 1
                                 FEBS Lett. 62:89-92(1976).
                                                                                                                                                                                                                                Smyth D.G., Massey D.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28
126
166
25
85
85
58
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEPTIDE
PEPTIDE
PEPTIDE
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGNAL
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D-RIBULOSE 1,5-BISPHOSPHATE, THE PRIMARY EVENT IN PHOTOSYNTHETIC CARBON DIOXIDE TYRATION, AS WELL AS THE OXIDATIVE FRAGMENTATION OF THE PENTOSE SUBSTRATE IN THE PHOTORESPIRATION PROCESS. BOTH REACTIONS OCCUR SIMULTANEOUSLY AND IN COMPETITION AT THE SAME
                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
MEDIATE-9135864; PubMed=2103442;
MEDIATE-9135864; PubMed=2103442;
Silverthorne J., Wimpee C.F., Yamada T., Rolfe S.A., Tobin E.M.;
"Differential expression of individual genes encoding the small subunit of Tibulose-1.5-bisphosphate carboxylase in Lemna gibba.";
Plant Mol. Biol. 15:49-58(1990).
Plant Mol. Biol. 15:49-58(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR000894; RuBisCO_small.
Pfam; PF00101; RuBisCO_small; 1.
PRINTS; PR00152; RUBISCOSMALL.
ProDom; PD000290; RuBisCOSMALL.
Photosynthesis; Carbon dioxide fixation; Photorespiration;
Lyase; Oxidoreductase; Monooxygenase; Chloroplast; Transit peptide;
                                                 AMIDATION (G-29 PROVIDE AMIDE GROUP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- CATALYTIC ACTIVITY: D-ribulose 1,5-bisphosphate + CO(2) = 2 3-phospho-p-glycerate.
-!- CATALYTIC ACTIVITY: D-RIBULOSE 1,5-BISPHOSPHATE + O(2) = 3-PHOSPHO-D-GLYCERATE + 2-PHOSPHOGLYCOLATE.
-!- SUBUNIT: 8 LARGE CHAINS + 8 SMALL CHAINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Araceae, Lemna.
NCBI_TaxID=4470;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -i- SUBCELLULAR LOCATION: Chloroplast.
-i- MISCELLANEOUS: THIS PROTEIN IS CODED BY ONE MEMBER OF A SMALL
                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1990 (Rel. 16, Created)
01-NOV-1990 (Rel. 16, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
Ribulose bisphosphate carboxylase small chain SSU26, chloroplast
                                                                                                                                                                                        .;
0
                                                                 N-LINKED (GLCNAC. .).
V -> I (IN 30% OF THE MOLECULES).
0441DC255288D8F6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE RUBISCO SMALL CHAIN FAMILY.
                                                                                                                                                     Length 166;
                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     precursor (EC 4.1.1.39) (RuBisCO small subunit SSU26). SSU26.
                                                                                                                                                       DB 1;
                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or send an email to license@isb-sib.ch).
                                                                                                                                                       Score 30;
Pred. No.
                                                                                                                                                                                     5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lemna gibba (Swollen duckweed)
                                                                                                     Ψ.
                                                                                                                                                     75.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; X17232; CAA35101.1; -. PIR; S11680; RKDWS6.
                                                                                 120
17325 N
                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                            STANDARD;
104
116
110
28
133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MULTIGENE FAMILY
92
98
105
28
133
120
                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP; P00866; 4RUB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Multigene family.
                                                                                                                                                                                                                                                       12 SLLAFTSA 19
                                                                                                                                                                                                                       1 SLMAFTAA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTIVE SITE.
                                                                                                                                                                                        ..
9
                                                                                                                                                                                                                                                                                                                                          RBS2_LEMGI
                DISULFID
DISULFID
MOD_RES
                                                                                 VARIANT
SEQUENCE
 DISULFID
                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                          P19308;
                                                                                                                                                                                                                                                                                                                          RBS2_LEMGI
                                                                                                                                                                                     Matches
   REFFFFS
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                            δ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                          ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ESDUENCE FROM N.A.

MEDLINE-9135864; Pubmed-2103442;

SILVETHORNE J., Wimpee C.F., Yamada T., Rolfe S.A., Tobin E.M.;

SILVETHORNE J., Wimpee C.F., Yamada T., Rolfe S.A., Tobin E.M.;

SILVETHORNE J., Wimpee C.F., Yamada T., Rolfe S.A., Tobin E.M.;

Subunit of ribulose-1,5-bisphosphate carboxylase in Lemna gibba.";

Plant Mol. Biol. 15.495840990).

-! FUNCTION: RUBISCO CAPALYZES TWO REACTIONS: THE CARBOXYLATION OF

D-RIBULOSE 1,5-BISPHOSPHATE, THE PRIMARY EVENT IN PHOTOSYNTHETIC

CARBON DIOXIDE FIXATION, AS WELL AS THE OXIDATIVE FRAGENTATION OF

THE PENTOSE SUBSTRATE IN THE PHOTORESPIRATION PROCESS. BOTH

REACTIONS OCCUR SIMULTANEOUSLY AND IN COMPETITION AT THE SAME
                  RIBULOSE BISPHOSPHATE CARBÓXYLASE SMALL
CHAIN SSU26.
44D8151B354462B9 CRC64;
                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHLOROPLAST (BY SIMILARITY).
RIBULOSE BISPHOSPHATE CARBOXYLASE SMALL
CHAIN SSUSA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; P00866; 4RUB:
InterPro; IPR000894; RuBisCO_small.
PFGM, PR00101; RuBisCO_small.
PFGM, PR001020; RuBisCO_small; 1.
Probom; PD000290; RuBisCO_small; 1.
Probom; Pd000290; RuBisCO_small; 1.
Lyase; Oxidoreductase; Monooxygenase; Chloroplast; Transit peptide; Multigene family.
TRANSIT 1 57 CHLOROPLAST (BY SIMILARITY).
TRANSIT 58 177 RIBULOSE BISPHOSPHATE CARBOXYLASE SWALI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- CATALYTIC ACTIVITY: D-ribulose 1,5-bisphosphate + CO(2) = 2 3-phospho-D-glycerate.
-!- CATALYTIC ACTIVITY: D-RIBULOSE 1,5-BISPHOSPHATE + O(2) = 3-PHOSPHO-D-GLYCERATE + 2-PHOSPHOGLYCOLATE.
-!- SUBGINIT: 8 LARGE CHAINS + 8 SMALL CHAINS.
-!- SUBGILIALAR LOCATION: Chloroplast.
-!- MISCELLAURA LOCATION: Chloroplast.
-!- MISCELLAURE PAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lemna gibba (Swollen duckweed).
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Araceae; Lemna.
NCBI_TaxID=4470;
                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1990 (Rel. 16, Created)
01-NOV-1990 (Rel. 16, Last sequence update)
01-MAY-2002 (Rel. 41, Last annotation update)
Ribulose bisphosphate carboxylase small chain SSUSA, chloroplast precursor (EC 4.1.1.39) (RuBisCO small subunit SSUSA).
                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -1- SIMILARITY: BELONGS TO THE RUBISCO SMALL CHAIN FAMILY.
                                                                                                                  Length 177
                                                                                                                                                          1; Indels
  CHLOROPLAST (BY SIMILARITY)
                                                                                                                  Score 30; DB 1;
Pred. No. 11;
                                                                                                                                                                                                                                                                                                                                177 AA.
                                                                                                                                                        1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                  PRT;
                                                          177 AA; 19815 MW;
                                                                                                              75.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X17230; CAA35099.1; -. PIR; S11683; RKDWSA.
                                                                                                                                                        7; Conservative
                                                                                                                                                                                                                                                                                                                                  STANDARD;
57
                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                                    4 SMMASTAAV 12
                                                                                                                                                                                              1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTIVE SITE.
                                                                                                                                                                                                                                                                                                                                RBS5_LEMGI
P19311;
                                                          SEQUENCE
                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                          RESULT 15
RBS5_LEMGI
                                                                                                                                                        Matches
SFF
                                                                                                                                                                                              δ
                                                                                                                                                                                                                                  g
```

```
Gaps
                                              ;
0
                           Length 177
                                             Indels
177 AA; 19802 MW; 7C6E35F3A1C5FCB7 CRC64;
                                              ;
                          DB 1;
11;
                                             1; Mismatches
                          Score 30;
Pred. No.
                          75.0%;
77.8%;
                  Ouery Match
Best Local Similarity 77.0
Frac 7; Conservative
                                                                                 4 SMMASTAAV 12
                                                               1 SLMAFTAAV 9
SEQUENCE
g
                                                                δλ
                                                                                g
```

completed: August 23, 2002, 09:55:25

55 sec

Job time:

Search

ő

THIS PAGE BLANK (USPTO)

Run on:

```
Obpwuy hepatitis c
068584 hepatitis c
068582 hepatitis c
068585 hepatitis c
091747 pseudomonas
068134 hepatitis c
09429 hepatitis c
094469 hepatitis c
094131 hepatitis c
094131 hepatitis c
091310 hepatitis c
091310 hepatitis c
091310 hepatitis c
091314 hepatitis c
09134 hepatitis c
08176 hepatitis c
08187 hepatitis c
08181 hepatitis c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Songsivilal S., Leelawiwat W., Dharakul T.;
Songsivilal S., Leelawiwat W., Dharakul T.;
"Molecular cloning and expression of the NS4 gene from the Thai
isolates of hepatitis C virus.";
Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; U55287; AAB00218.1; -.
InterPro: IPR000745; HCV_NS4a.
InterPro: IPR0001490; HCV_NS4b.
Pfam; PF01006; HCV_NS44; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19033 MW; CE63B2244FB31C20 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 40; DB 12;
100.0%; Pred. No. 0.43;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       188 AA
                                                                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
            Q68584
Q68582
Q68582
Q907877
Q68344
Q39929
Q90705
Q90710
Q90711
Q
                                                                                                                                                                                                                                                                                                                                                 Q81755
Q41809
Q81817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
 01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-DEC-2001 (TrEMBLrel. 19, NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                      3010
3010
                                                                                                                                3021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. STRAIN-BB136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    34
1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q68578
Q68578;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          068578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q68578 hepatitis c
Q68579 hepatitis c
Q68577 hepatitis c
Q68577 hepatitis c
Q81573 hepatitis c
Q81579 hepatitis c
Q81579 hepatitis c
Q36609 hepatitis c
Q36609 hepatitis c
Q36610 hepatitis c
Q36610 hepatitis c
Q9165 hepatitis c
Q9165 hepatitis c
Q91665 hepatitis c
Q91666 hepatitis c
Q94166 hepatitis c
Q94166 hepatitis c
Q94166 hepatitis c
                                                                                     % Search time 139.83 Seconds
(without alignments)
11.135 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Description
                                                                                                                                                                                                                                                                   562222
           4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                 hits satisfying chosen parameters:
                                                                                                                                                                                                                                       562222 seqs, 172994929 residues
           GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                             protein search, using sw model
                                                                                        August 23, 2002, 10:21:59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q68578
Q68586
Q68579
Q68577
Q68580
Q81573
Q81573
Q81573
Q36609
Q36609
Q36609
Q91FE5
Q9D176
Q9D176
                                                                                                                                                                                              BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sp_vertebrate:*
sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_invertebrate:*
sp_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_rvirus:*
sp_bacteriap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sp_mhc:*
sp_organelle:*
                                                                                                                                                                                                                                                                                                                                                                                                  sp_archea:*
sp_bacteria:*
                                                                                                                                      US-08-854-825-34
40
                                                                                                                                                                                                                                                                                            length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_plant:*
sp_rodent:*
sp_virus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length DB
                                                                                                                                                                      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                sp_fungi:*
sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                       SPTREMBL_19:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sp_phage: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271
2436
3011
3011
3011
3011
3011
3011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11:
12:
13:
                                                                                                                                                                                                                                                                Total number of
                                                                                                                                                                                                                                                                                              sed
                                                                                                                                                        Perfect score:
                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ı
                                                                                                                                                                                                                                                                                            0B
                                                             OM protein
                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                            Minimum I
Maximum I
                                                                                                                                                                                                                                                                                                                                                                                       Database
```

. 9

068586

ACCOCC OS STATE THE STATE OF TH

```
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS4 PROTEIN (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN—BBISO;
SONGSIVILATE TOURING AND EXPRESSION OF the NS4 gene from the Thai
"Molecular clohing and expression of the NS4 gene from the Thai
"Soldates of hepatitis C virus.";
Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.

REMBL; U5589; AAB00220.1; -.
RICTPTO; IPR0001490; HCV_NS4a.

R InterPro; IPR0001490; HCV_NS4a.

R Pfam; PF01006; HCV_NS4a; 1.

R Pfam; PF01001; HCV_NS4b; 1.

R Pfam; PF01001; HCV_NS4b; 1.

R NON_TER 198 198
O SEQUENCE 198 AA; 19908 MW; 80D07F5A9168B67E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DCC-2001 (TrEMBLrel. 19, Last annotation update)
NS4 PROTEIN (FRAGMENT).
Hepatitis C virus.
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                               Songsivilai S., Leelawiwat W., Dharakul T.;
"Molecular cloning and expression of the NS4 gene from the Thai isolates of hepatitis C virus.";
Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.
EMBL, U55286; AAB00217.1; -.
EMBL, U55286; AAB00217.1; -.
Enterpro: IPR00149; HCV_NS4a.
InterPro: IPR00149; HCV_NS4b.
Pfam; PF01001; HCV_NS4a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 40; DB 12; Length 198; 100.0%; Pred. No. 0.46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 100.0%; Score 40; DB 12; Length 198; Best Local Similarity 100.0%; Pred. No. 0.46; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 198 198 AM; 2F5CO4B9D326BE55 CRC64;
                               198 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           198 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ouery Match
Best Local Similarity 100.00
-100 9; Conservative
                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. STRAIN=BB10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11111111
30 SLMAFTAAV 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        068580;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           068580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
Q68580
                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A PAC
DDT B 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                 C STRAIN-BBBB.
A Songsivilai S., Leelawiwat W., Dharakul T.;
A Songsivilai S., Leelawiwat W., Dharakul T.;
Songsivilai S., Leelawiwat W., Dharakul T.;
T "Molecular cloning and expression of the NS4 gene from the Thai
I isolates of hepatitis C virus.";
Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.

EMBL: U55295; AAB00226.1; -.

IN ERROO745; HCV_NS4a.

DR InterPro: IPR001499; HCV_NS4b.

DR Pfam; PF01006; HCV_NS4b.

DR Pfam; PF01001; HCV_NS4b: 1.

DR Pfam; PF01001; HCV_NS4b: 1.

PFT NON_TER 197 197

SQ SEQUENCE 197 AA; 20086 MW; CF8EA3DEDB7B97B5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         068579 PRELIMINARY; PRT; 197 AA.
068579.
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NG4 PROTEIN (FRAGMENT).
Hepatitis C virus.
Hepatitis C virus.
Hepatitis C virus.
Hepatitis C.
                                                                                                                                                                                                                                                 Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SCRAIN-BB143:
Songsivilai S., Leelawiwat W., Dharakul T.;
Songsivilai S., Leelawiwat W., Dharakul T.;
Songsivilai S., Leelawiwat W., Dharakul T.;
Submicted (APR-1996) to the EMBL/GenBank/DDBJ databases.
EMBL, U55288: AAB00219.1; -.
NON_TER 197 197
SEQUENCE 197 AA: 19908 MW; BA4D248A2F0AA9D6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.0%; Score 40; DB 12; Length 197; Best Local Similarity 100.0%; Pred. No. 0.45; Matches 9; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match 100.0%; Score 40; DB 12; Length 197; Best Local Similarity 100.0%; Pred. No. 0.45; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                           Created)
Last sequence update)
Last annotation update)
                                                       197 AA.
                                                       PRT;
                                                                                                     01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-DEC-2001 (TrEMBLrel. 19, NS4 PROTEIN (FRAGENT).
                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                              NCBI_TaxID-11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  111111111
27 SLMAFTAAV 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11111111
29 SLMAFTAAV 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 SLMAFTAAV 9
Q68586
T
Q68586
```

RESULT 3 Q68579

g

ó

Gaps

ô

Gaps

RESULT 068577

q

õ

Gaps

```
Kolykhalov A.A., Agapov E.V., Blight K.J., Mihalik K., Feinstone S.M.,
Rice C.M.;
                                                                                                    PRINTS; PR00284; TOXIN.—PRODOM; PR0000; PR186062; HVV_NS1; 1. PR0000; PR186062; PR0V_NS1; 1. APP-binding; Coat protein; Envelope protein; Glycoprotein; Helicase; Nonstructural protein; Polyprotein; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-DRC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transcribed RNA.";
Science 277:570-574(1997).
-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1.
EMBL; AF009606; AAB666324.1; -.
HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Transmission of hepatitis C by intrahepatic inoculation with
                                                                                                                                                                                                                                                                                                                      100.0%; Score 40; DB 12; Length 2436; 100.0%; Pred. No. 5.6;
                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                 1 1
2436 2436
2436 AA; 264734 MW; D7B9872900BE3125 CRC64;
                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT; 3011 AA.
                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=97373636; PubMed=9228008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR002531; HCV_NS1.
InterPro; IPR002518; HCV_NS2.
InterPro; IPR00109; HCV_NS3.
InterPro; IPR0001495; HCV_NS4.
InterPro; IPR001495; HCV_NS4b.
InterPro; IPR001896; HCV_NS5b.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002166; HCV_RdRP.
InterPro; IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR002522; HCV_capsid InterPro; IPR002521; HCV_core.
Pfam; PF01006; HCV_NS4a; 1.
Pfam; PF01001; HCV_NS4b; 1.
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00998; HCV_RGRP; 1.
Pfam; PF00271; helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCV_NS4a; 1.
HCV_NS4b; 1.
HCV_NS5a; 1.
HCV_RGRP; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001410; DEAD. InterPro; IPR002522; HCV_c
                                                                                                                                                                                                                                                                                                                        Query Match 100.

Best Local Similarity 100.

Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                     ||||||||||
|Db | 1339 SLMAFTAAV 1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEROPS; S29.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PF01506;
PF00998;
                                                                                                                                                                                                                                                                                                                                                                                                             1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEROPS; U39.001
                                                                                                                                                                                         Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
InterPro;
                                                                                                                                                                                                             NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           036579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         036579
    DOR WAR KEN OR STANKEN
                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HID DATE THE DATE OF THE PROPERTY OF THE DATE OF THE D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROFEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
(Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                     Miller H.M., Goeser T., Pfaff E., Theilmann L.; "Characterization of German hepatitis C virus isolates: Comparison with different isolate, genetic variability of HCV within a country and even in a single patient and antigenicity of expressed core protein.";
                                                                                                                                                                                                                                   Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 40; DB 12; Length 271; 100.0%; Pred. No. 0.63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
Choo Q.-L., Richman K., Han J.;
The nuclectide sequence of the Hepatitis C viral genome.";
Submitted (MAY-1990) to the EMBL/GenBank/DDBJ databases.
BMBL, M32084; AAA45677.1; -.
HSSP; P27958; 1AlV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (FEB-1992) to the EMBL/GenBank/DDBJ databases.
EMBL; M86766; AAA45616.1; -.
HSSP; P27958; 1HEI.
InterPro; IPR00745; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 271 AA; 29796 MW; 72EBEC54E6877CD4 CRC64;
                                                                       01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NONSTRUCTURAL PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT; 2436 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001410; DEAD.
InterPro; IPR002531; HCV_NS1.
InterPro; IPR004109; HCV_NS2.
InterPro; IPR004109; HCV_NS3.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001868; HCV_NS4.
InterPro; IPR00166; HCV_NS5.
InterPro; IPR001191; Toxin.
InterPro; IPR001191; Toxin.
Pfam; PP01560; HCV_NS1; 1.
Pfam; PP01507; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01006; HCV_NS4a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9; Conservative
                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111111111
262 SLMAFTAAV 270
                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                             Hepatitis C virus
                                                                                                                                                                                                                                                       Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 SLMAFTAAV 9
                                                       Q81573 P
Q81573;
Q1-NOV-1996 (
Q1-NOV-1996 (
O1-DEC-2001 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q81756
Q81756;
                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                 RESULT
Q81573
                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

```
SEQUENCE
                                                                                                                                      036609
                                                                                                                 RESULT
                                                                                                                             036609
                                                                             g
                                                          οy
                                                                                                                                        ó;
                                                                                                                                                                                                                                                                                                                                                                      STRAIN=H77;
MEDLINE=97385173; PubMed-9238047;
Yanaqi M., Purcell R.H., Emerson S.U., Bukh J.;
"Transcripts from a single full-length cDNA clone of hepatitis C virus are infectious when directly transfected into the liver of a
                                                                                                                 Gaps
                                                                                                                                                                                                                            036608;
01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
Pfam: PF00271; helicase_C; 1.
Probom; PD186062; HCV_NS1; 1.
ATP-binding; Coat protein; Envelope protein; Glycoprotein; Helicase;
Nonstructural protein; Polyprotein; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam: PF00271; helicase_C; 1.
Probom; PD186062; HCV_NS1; 1.
ATP-binding; Coat protein; Envelope protein; Glycoprotein; Helicase; Nonstructural protein; Polyprotein; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                        (NS1)]
Hepatitis C virus strain H77.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus
                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                              chimpanzee.";
Proc. Natl. Acad. Sci. U.S.A. 94:8738-8743(1997).
Proc. Natl. Acad. Sci. U.S.A. 94:8738-8743(1997).
EMBL; AF011751; AAB67036.1; -
HSSP; P27958; 1HEI.
MEROPS; S29:001; -
                                                                                           Length 3011;
                                                                                                              0; Indels
                                            Transmembrane.
SEQUENCE 3011 AA; 327182 MW; E2E0EE809C63C1B9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3011 AA; 327112 MW; 0B75E6B81CB5C198 CRC64;
                                                                                           12;
                                                                                         Query Match 100.0%; Score 40; DB 1
Best Local Similarity 100.0%; Pred. No. 6.9;
Matches 9; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR002519; HVC_env.
InterPro; IPR002519; HVC_NS1.
InterPro; IPR002518; HCV_NS1.
InterPro; IPR001019; HCV_NS2.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR002166; HCV_NS56.
InterPro; IPR002166; HCV_RGAP.
InterPro; IPR001169; HCV_RGAP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR001410; DEAD.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1. Pfam; PF01550; HCV_core; 1. Pfam; PF01550; HCV_NS1; 1. Pfam; PF01506; HCV_NS3; 1. Pfam; PF01006; HCV_NS3; 1. Pfam; PF01006; HCV_NS4s; 1. Pfam; PF01506; HCV_NS5a; 1. Pfam; PF00998; HCV_NS5a; 1. Pfam; PF00998; HCV_NS5a; 1. Pfam; PF00998; HCV_NS5a; 1.
                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=63746;
                                                                                                                                      1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transmembrane
SEQUENCE 30
                                                                                                                                                                                                                     036608
                                                                                                                                                                                               6
                                                                                                                                                           g
 DR
KW
KW
SO
SO
                                                                                                                                        ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-97385173; PubMed-9238047; Yanaqi M., Purcell R.H., Emerson S.U., Bukh J.; Yanaqi M., Purcell R.H., Emerson S.U., Bukh J.; "Transcripts from a single full-length cDNA clone of hepatitis C virus are infectious when directly transfected into the liver of a
                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
ATP-binding; Coat protein; Envelope protein; Glycoprotein; Helicase;
Nonstructural protein; Polyprotein; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                  01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TREMBLrel. 05, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus strain H77.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 12; Length 3011;
                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3011 AA; 327261 MW; 10D1C9702CA9B5DC CRC64;
DB 12;
6.9;
                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 40; DB Best Local Similarity 100.0%; Pred. No. 6.9 Matches 9; Conservative 0; Mismatches
                                          Mismatches
  Score 40;
Pred. No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002868; HCV_NSSa.
InterPro; IPR00166; HCV_NSSa.
InterPro; IPR00166; HCV_NSP.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_capsid; 1.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01539; HCV_cap; 1.
Pfam; PF01539; HCV_NS3; 1.
Pfam; PF01509; HCV_NS3; 1.
Pfam; PF01000; HCV_NS3; 1.
Pfam; PF01001; HCV_NS3; 1.
Pfam; PF01001; HCV_NS4D; 1.
Pfam; PF01001; HCV_NSAD; 1.
Pfam; PF01566; HCV_NSAD; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV_core.
HCV_core.
HCV_env.
HCV_NSI.
                                          ö
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HCV_NS2.
HCV_NS3.
HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCV_NS4b
  Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Interpro; IPR002519; H
Interpro; IPR002511; H
Interpro; IPR002518; H
Interpro; IPR004109; H
Interpro; IPR000745; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR001410;
InterPro; IPR002522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002521;
                                                                                                      1789 SLMAFTAAV 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEROPS; S29.001; -. MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=63746;
                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 SLMAFTAAV 9
                                                                                 1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
```

036610; 036610

RESULT 11

g

036610

```
MEACHE'S 223'001; -.

MEACHE'S 223'001; -.

MEACHE'S 223'001; -.

MITCETPROO 1PR000345; CYtC_heme_bind.

MITCETPROO 1PR000345; CYtC_heme_bind.

MITCETPROO 1PR0002519; HCV_env.

MITCETPROO 1PR0002519; HCV_NS1.

MITCETPROO 1PR000745; HCV_NS1.

MITCETPROO 1PR000745; HCV_NS4.

MITCETPROO 1PR000745; HCV_NS1.

MITCETPROO 1
01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
                                                                                                                                                                                                                                                                                                                       prototype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROFEIN [CONTAINS: ENVELOPE GLYCOPROFEIN E2 (GP68) (GP70)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus
                                                                                                                                                Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Desai S.M., Devare S., Yamaguchi J.;
"Hepatitis C Virus.";
Submitted (JUL-2000) to the EMBL/GenBank/DDBJ databases.
-! SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1.
EMBL; AF290978; AAG02099.1; -.
HSSP; P27958; 1HEI.
InterPro; IPR001410; DEAD.
InterPro; IPR002531; HCV_env.
InterPro; IPR002531; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                         E1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 40; DB 12; Length 3011; 100.0%; Pred. No. 6.9;
                                                                                                                                                                                                                                                                                                                                         MEDINE-21262212; Pubmed-11369872;
Lanford R.E., Lee H., Chavez D., Guerra B., Brasky K.M.;
"Infectious cDNA clone of the hepatitis C virus genotype 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT; 3011 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |||||||||
| 1789 SLMAFTAAV 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                         Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus
                                                                                                                                                                                             NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEROPS; S29.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-COLONEL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 SLMAFTAAV
                                                                                                                                                                       Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09ELS8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9ELS8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (NS1)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9ELS8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ő
                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-H77;
MEDLINE-97388173; PubMed-9238047;
Yanagi M., Purcell R.H., Emerson S.U., Bukh J.;
Transcripts from a single full-length cDNA clone of hepatitis C virus are infectious when directly transfected into the liver of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                               01-JAN-1998 (TrEWBLrel. 05, Created)
01-JAN-1998 (TrEWBLrel. 05, Last sequence update)
01-DEC-2001 (TrEWBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProDom; PD186062; HCV_NS1; 1.
ATP-binding; Coat protein; Envelope protein; Glycoprotein; Helicase;
Nonstructural protein; Polyprotein; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                    (NS1)].
Hepatitis C virus strain H77.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 40; DB 12; Length 3011; 100.0%; Pred. No. 6.9; tive 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3011 AA; 327220 MW; 293F91430A0D4067 CRC64;
                                                                                                                       PRT; 3011 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3011 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro: IPR002519; HCV_env.
InterPro: IPR002519; HCV_env.
InterPro: IPR002519; HCV_NS1.
InterPro: IPR004109; HCV_NS2.
InterPro: IPR00409; HCV_NS4a.
InterPro: IPR001409; HCV_NS4a.
InterPro: IPR002869; HCV_NS5a.
InterPro: IPR002869; HCV_NS5a.
InterPro: IPR002166; HCV_RSAP.
InterPro: IPR00166; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pfan, PP01543; HCV_capsid; 1. Pfan; PP01543; HCV_capsid; 1. Pfan; PP01549; HCV_capsid; 1. Pfan; PP01560; HCV_caps; 1. Pfan; PP01560; HCV_NS2; 1. Pfan; PP01907; HCV_NS3; 1. Pfan; PP01006; HCV_NS4s; 1. Pfan; PP01001; HCV_NS4s; 1. Pfan; PP00998; HCV_RGRP; 1. Pfan; PP00998; HCV_RGRP; 1. Pfan; PP00971; helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001410; DEAD.
InterPro; IPR002522; HCV_C
InterPro; IPR002521; HCV_C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
1789 SLMAFTAAV 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1789 SLMAFTAAV 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEROPS; S29.001; -
                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=63746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   chimpanzee.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transmembrane
```

SEQUENCE

Q9IFE5 Q9IFE5;

09IFES ID 09 AC 09

RESULT 12

g

δ

ö

Gaps

ó

```
Q03463
Q03463;
                                                                                                                                                 RESULT
Q03463
                                                                                                     g
                                                                           ò
                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                Coat protein; Envelope protein; Glycoprotein; Nonstructural protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Coat protein; Envelope protein; Glycoprotein; Nonstructural protein; Polyprotein; RNA-directed RNA polymerase; Transmembrane.

CHAIN 2 191 CORE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                British isolate derived from a single blood donation.;

J. Viral Hepat. 7:459-465(2000).

G. Viral Hepat. 7:459-465(2000).

EMBL; AJ278830; CAC03609.1; -...

R HSSP; P279589 LALV.

R InterPro: IPR001410; DEAD.

InterPro: IPR002519; HCV_env.

R InterPro: IPR002519; HCV_NS1.

R InterPro: IPR00745; HCV_NS2.

R InterPro: IPR00745; HCV_NS3.

R InterPro: IPR00745; HCV_NS3.

R Pfam; PF0159; HCV_NS1.

R Pfam; PF0159; HCV_NS1.

R Pfam; PF01569; HCV_NS1.

R Pfam; PF01059; HCV_NS2: 1.

R Pfam; PF01069; HCV_NS2: 1.

R Pfam; PF01069; HCV_NS3: 1.

R Pfam; PF01069; HCV_NS4.

R Pfam; PF01069; HCV_NS4.

R Pfam; PF01089; HCV_NS3: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (1)
SEQUENCE FROM N.A.
MEDLINE-21014672; Pubmed-11115058;
Kumar U., Tuthill T., Thomas H.C., Monjardino J.;
Sequence, expression and reconstitution of an HCV genome from a "Sequence, expression and reconstitution of an HCV genome from a "inlate derived from a single blood donation.";
                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                          Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENVELOP PROTEIN 1.
ENVELOP PROTEIN 2.
NON-STRUCTURAL PROTEIN 2.
NON-STRUCTURAL PROTEIN 3.
NON-STRUCTURAL PROTEIN 4A.
NON-STRUCTURAL PROTEIN 4B.
NON-STRUCTURAL PROTEIN 5A.
NON-STRUCTURAL PROTEIN 5A.
NON-STRUCTURAL PROTEIN 5A.
NON-STRUCTURAL PROTEIN 5B.
                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                 polymerase; Transmembrane.
                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                        100.0%; Score 40; DB 12;
100.0%; Pred. No. 6.9;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                              PRT; 3011 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last seq
01-DEC-2001 (TrEMBLrel. 19, Last ann
                                       Pfam; PF01539; HCV_env; 1.
Pfam; PF01569; HCV_env; 1.
Pfam; PF01508; HCV_NS2; 1.
Pfam; PF01006; HCV_NS4s; 1.
Pfam; PF00998; HCV_RGRP; 1.
ProDom; PD186062; HCV_NS1; 1.
SMART; SM00487; DEXDC; 1.
                                                                                                                                                                               3011 AA; 327107 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             327405 MW;
              IPR000745; HCV_NS4a. IPR002166; HCV_RdRP.
                                                                                                                                                                   RNA-directed RNA
                                                                                                                                                                                                                                                       9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMART; SM00487; DEXDC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA;
                                                                                                                                                                                                                                                                                                                 1789 SLMAFTAAV 1797
                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                     1 SLMAFTAAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     384
810
1027
1658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3011
                                                                                                                                                                 Polyprotein;
SEQUENCE 30
              InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                           Q9DIT6
Q9DIT6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                             RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                QΩ
õ
```

```
STRAIN=HC-J1;
MEDLINE=92044440; PubMed=1658196;
Okamoto H., Okada S., Sugiyama Y., Kurai K., Iizuka H., Machida A.,
Miyakawa Y., Mayumi M.;
"Nucleotide sequences of the genomic RNA of hepatitis C virus isolated
from a human carrier: comparison with reported isolates for conserved
                                Gaps
                                                                                                                                                                                          01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E2 (GP68) (GP70)
                                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=HC-J1;
MEDLINE=93117120; PubMed=1335573;
MEDLINE=93117120; Mishiro S.;
Mishiro S.;
"Full-length nucleotide sequence of a Japanese hepatitis C virus isolate (HC-J1) with high homology to USA isolates.";
Nucleic Acids Res. 20:6410-6410(1992).
                              .
0
     Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                  "The 5'-terminal sequence of the hepatitis C virus genome.";
Jpn. J. Exp. Med. 60:167-177(1990).
                                                                                                                                                                                                                                                                                                                                                 Okamoto H., Okada S., Sugiyama Y., Yotsumoto S., Tanaka T., Yoshizawa H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mink M., Benichou S., Madaule P., Tiollais P., Prince A.,
                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (DEC-1992) to the EMBL/GenBank/DDBJ databases
                              .
0
Query Match 100.0%; Score 40; DB 12; Best Local Similarity 100.0%; Pred. No. 6.9; Matches 9; Conservative 0; Mismatches 0:
                                                                                                                                                     PRT; 3011 AA.
                                                                                                                                                                              01-NOV-1996 (TrEMBLrel. 01, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and divergent regions. ";
J. Gen. Virol. 72:2697-2704(1991).
[3]
                                                                                                                                                                                                                                                                                                                                          MEDLINE-91013116; PubMed-2170712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=HC-J1;
MEDLINE=94174722; PubMed=7510436;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HCV_capsid.
HCV_core.
HCV_env.
HCV_NSI.
                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001410; D
InterPro; IPR00252; H
InterPro; IPR00251; H
InterPro; IPR002519; H
InterPro; IPR002531; H
                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                               Hepatitis C virus
                                                                                                                                                                                                                                                                                  NCBI_TaxID=11103;
                                                         6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEROPS; S29.001;
MEROPS; U39.001;
                                                         1 SLMAFTAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=HC-J1;
Okamoto H.;
                                                                                                                                                                                                                                                                                                                             STRAIN=HC-J1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Inchauspe G.
```

```
DR InterPro; IPR002518; HCV_NS2.

DR InterPro; IPR004109; HCV_NS3.

DR InterPro; IPR001490; HCV_NS4.

DR InterPro; IPR001490; HCV_NS4b.

DR InterPro; IPR001266; HCV_NS4b.

DR InterPro; IPR001266; HCV_NS4b.

DR Fdam; PF01542; HCV_core; 1.

DR Ffam; PF01539; HCV_env; 1.

PR ffam; PF01539; HCV_NS2; 1.

PR ffam; PF01539; HCV_NS2; 1.

PR ffam; PF01500; HCV_NS3; 1.

PR ffam; PF01001; HCV_NS4b; 1.

PR ffam; PF01005; HCV_NS4b; 1.

PR ffam; PF01006; HCV_NS4b; 1.

PR ffam; PF01006; HCV_NS5a; 1.

PR ffam; PF01006; H
```

· 0 Query Match 100.0%; Score 40; DB 12; Length 3011; Best Local Similarity 100.0%; Pred. No. 6.9; Matches 9; Conservative 0; Mismatches 0; Indels 0;

; 0

Gaps

Search completed: August 23, 2002, 10:22:01 Job time: 1501 sec

THIS PAGE BLANK (USPTO)

Scoring table:

Searched:

DB 03

Minimum I Maximum I

Database

score:

Title: Perfect s

Sequence:

OM protein

Run on:

```
HCV viral core pro
HCV peptide NP-13.
HCV peptide NP-14.
Hepatitis C virus
HCV J7 C/E domain
Protein encoded by
Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus
Hepatitis C virus
HCV in plasmid pKM
Hepatitis C virus
Core protein regio
Hepatitis C Virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Novel molecule comprising a cytotoxic {\tt T} cell epitope - used vaccinate against hepatitis C viral infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cytotoxic T-cell epitope, as 131-140 of HCV-1 core region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus; HCV-1; epitope; vaccine; immunogen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALIGNMENTS
                                                                     AAB18534
AAR81946
                                                                                                                                                                                             AAY01614
AAY01609
AAW30583
AAR96558
                                                                                                                                                                                                                                                                                           AAR63353
AAR63291
AAR63292
                                                                                                                                                                                                                                                                                                                                                                                                                       AAR24525
AAW41754
AAR35758
AAR44010
                              AAR56611
AAR84500
                                                                                                                                                                   AAR66620
AAY14970
                                                                                                                                                                                                                                                      AAW62658
AAR63374
                                                                                                                                                                                                                                                                                                                                                                               AAW62659
                                                         AAB82051
                                                                                                 AAW33688
                                                                                                                 AAW70830
                                                                                                                              AAW80518
                                                                                                                                         AAR11274
                                                                                                                                                        AAR66615
                                                                                                                                                                                                                                                                                 AAR63359
                                                                                                                                                                                                                                                                                                                                     AAB18535
                                                                                                                                                                                                                                                                                                                                                    AAR92947
                                                                                                                                                                                                                                                                                                                                                                 AAW62823
                                                                                                                                                                                                                                                                                                                                                                                             AAR25123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR84570 standard; peptide; 10 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 1; Page 60; 85pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95WO-US03224.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94US-0214650.
    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SCRI ) SCRIPPS RES INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cerny A, Chisari FV;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1995-336941/43.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus.
  WO9525122-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-MAR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-SEP-1995
    AAR84570;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR84570
    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            THE STATE OF THE S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Heiper T-cell pept
Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human HCV1core-131
T cell epitope/MHC
Hepatitis C virus
Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                  Cytotoxic T-cell
                                                                                           August 23, 2002, 09:54:30 ; Search time 179.72 Seconds (without alignments) 6.180 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
               4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                              Potal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                   747574 segs, 111073796 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                 GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                     protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY10135
AAJ00276
AAJ01550
AAW85270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAJ03147
AAJ03178
AAJ03485
AAJ03985
AAR87651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR84570
                                                                                                                                                                                                          BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ID
                                                                                                                                                                                                                                                                                                          seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-854-825-1
51
                                                                                                                                                                               1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
110
111
112
115
115
115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
```

ಭ

Score

Result . ₽ 51 51 51 51 51 51 51 51

1108433

~

ö

Gaps

ö

Indels

Length 10;

100.0%; Score 51; DB 18; 100.0%; Pred. No. 0.00032;

0; Mismatches

Conservative

10;

1 ADLMGYIPLV 10

Similarity

8288288

```
Query Match
                                     Best_Local
Matches 1
                                                                                                                                                                                         a
                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Peptides AAW39430-W39734 are used in a novel method for the selection of immunogenic T-cell peptide epitopes present in polypeptide antigens. The method involves the identification of peptide sequences capable of binding to an HLA (human leukcyte antigen) class I molecule and measuring the binding of this epitide to the HLA class I histocompatablily complex) class I molecule is measured on intact histocompatablily complex) class I molecule is measured on intact histocompatablily complex) class I molecule is measured on intact histocompatablily complex of peptide at their cell surfaces. The method can be used to select peptide epitopes for generating vaccines against a disease associated with the polypeptide, e.g. cancers or AIDS. The peptide epitopes are especially T-cell peptide epitopes with strong anti-tumour and anti-viral immune responses. Peptide AAW39445 is the HCVIcore-131 peptide which is a HLA-A*0201 restricted cytotoxic T
from the core, El, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptide specific cytotoxic T-cell activity. The peptides AR884570-77 were found to have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T cell epitope; immune response; human leukocyte antigen; HLA Class I; vaccine; immunogenic; major histocompatablilty complex; MHC; B cell; disease; anti-tumour; anti-viral.
                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - by measuring the intact B cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Van Der Burg SH;
                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                              Length 10;
                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                           100.0%; Score 51; DB 16;
100.0%; Pred. No. 0.00032;
.ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Method of selecting T cell peptide epitope(s) stability of HLA class I-peptide complexes on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Toes REM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RIJKSUNIV LEIDEN.
SCI SEED CAPITAL INVESTMENTS BV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human HCV1core-131 immunogenic peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 2; Page 27; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kast WM, Melief CJM, Offringa R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAW39445 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97WO-NL00229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96EP-0201145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1997-549891/50
                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                     1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                           1 adlmgyiplv 10
                                                                                                                                                      10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W09741440-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-JUN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     33-DEC-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36-NOV-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic.
                                                                                                                                                         Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAW39445;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (UYLE-) F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW39445
```

RESULT

ð g

```
The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintaining the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an encogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes that is necessary to keep CTL active, cytotoxic and recirculation that the body. AAY10071 to AAY10639 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Inducing a cytotoxic T lymphocyte response - by.maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                          Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 51; DB 20;
100.0%; Pred. No. 0.00032;
iive 0; Mismatches 0;
                                                                                                                                          T cell epitope/MHC ligand SEQ ID NO:65.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Page 25; 199pp; English.
                                   AAY10135 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                           97US-0988320.
                                                                                                                                                                                                                                                                                                                                                                                                                            97CA-2209815.
                                                                                                     12-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.

Best Local Similarity 100.

Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-120514/10.
                                                                                                                                                                                                                                                Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10 AA;
                                                                                                                                                                                                                                                                                                    WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                        10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                           10-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                            10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                       21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kuendig TM,
                                                                    AAY10135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
RESULT
AAY10135
                                   ò
```

lymphocyte (CTL) epitope.

10 AA

Sequence

a

```
The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Helper T-cell peptide; human leucocyte antigen; HLA; DR4w4; DR1; DR7; cytotoxic T lymphocyte; CTL; hepatitis; autoimmune disease; acquired immune deficiency syndrome; malaria; cancer; allograft rejection; allergy; Lyme disease; hepatitis; post-streptococcal endocarditis; glomerulonephritis; food hypersensitivity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Composition containing peptide that induces cytotoxic T lymphocyte response, and helper peptide - can bind to human leucocyte antigen alleles, used to treat or prevent cancers, parasitic infections and autoimmune disease
                                                                                                                                                                                                  A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Helper T-cell peptide derived from a Hepatitis C virus protein
                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                  Length 11;
                                                                                                                  Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                Southwood S, Livingston BD,
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 51; DB 22; 100.0%; Pred. No. 0.00036;
                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                 Disclosure; Page 139; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW85270 standard; peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Southwood
                    19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98WO-US01373,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0037432.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                 10; Conservative
                                                                                   (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (EPIM-) EPIMMUNE INC
                                                                                                                Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sette A, Sidney J,
                                                                                                                                                                WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1998-427679/36
                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                  11 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16-FEB-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9832456-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-JAN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               07-FEB-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-JAN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-JUL-1998
                                                                                                                Sette A,
Baker DM,
                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW85270;
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW85270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                              Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Southwood S, Livingston BD, Chesnut R;
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 51; DB 22;
100.0%; Pred. No. 0.00036;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; Page 107; 214pp; English
                                                                              AAJ00276 standard; Peptide; 11 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peptide; 11 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus epitope #1541.
                                                                                                                                                                              Hepatitis C virus epitope #267.
                                                                                                                                                                                                                                                                                                                                                            19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                              99US-0357737
                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAJ01550 standard;
1 adlmgyiplv 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 adlmgyiplv 11
                                                                                                                                                                                                                                                              Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11 AA;
                                                                                                                                                                                                                                                                                            WO200121189-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                              19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-JUL-2001
                                                                                                                                             02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-MAR-2001
                                                                                                                                                                                                                                                                                                                             29-MAR-2001
```

Sette A, Baker DM,

Sequence

antiviral

AAJ01550;

S

ò q

AAJ01550 RESULT

antiviral

AAJ00276;

ö

Gaps

100.08;

4

```
Best Local Similarity
              10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         σ
              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAJ03485
                                                   ŏ
                                                                                g
                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                        AAW85138-283 represent helper T-cell peptides, which can bind to the human leucocyte antigens (HLA) DR4W4, DR1 and DR7. The peptides are used in the course of the invention. The specification describes peptides that that induce a cytotoxic T lymphocyte (CTL) response, and T-helper peptides, that are used together to generate a CTL response for the treatment or pervention of viral, fungal, bacterial or parastic infections (e.g. hepatitis, acquired immune deficiency syndrome or malaria) or cancer (e.g. renal or cervical carcinoma, lymphoma, prostate cancer or condyloma acuminatum). Helper T-cell peptides may be used alone to induce a helper T cell response, e.g. in cases of autoimmune disease, allograft rejection, allergy, Lyme disease, hepatitis, post-streetics.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif; antiviral.
                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                   ó;
                                                                                                                                                                                                                                                                                                                                                   Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chesnut
                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Southwood S, Livingston BD, Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                               100.0%; Score 51; DB 19; 100.0%; Pred. No. 0.00052;
                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Page 175; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAJ03147 standard; Peptide; 15 AA.
          Claim 11; Page 39; 51pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus epitope #3138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                               Local Similarity
les 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                    1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus.
                                                                                                                                                                                                                                                                                              15 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sette A, Baker DM,
                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAJ03147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAJ03147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
```

g

ò

Length 15;

DB 22;

100.0%; Score 51;

Query Match

```
;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                             Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A new composition useful as a vaccines against hepatitis C virus
                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ж,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chesnut
                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Livingston BD,
Pred. No. 0.00052;
. Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 51; DB 22; 100.0%; Pred. No. 0.00052;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Southwood S, Livi
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure; Page 175; 214pp; English
                                                                                                                                                                          AAJ03178 standard; Peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAJ03485 standard; Peptide; 15 AA.
                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus epitope #3476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                            (first entry)
                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-308046/32
                                                         1 ADLMGYIPLV 10
                                                                            Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15 AA;
                                                                                                                                                                                                                                                                                                                                                                                               WO200121189-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-JUL-1999;
                                                                                                                                                                                                                                                                            Hepatitis C
                                                                                                                                                                                                                                           02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sette A, S
Baker DM,
                                                                                                                                                                                                                                                                                                                                antiviral.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         antiviral.
                                                                                                                                                                                                           AAJ03178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seguence
```

S

ö

```
The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR87651-53 are hepatitis C virus (HCV) core region peptides which can be used for the immunisation of an individual against HCV. They can also be used for diagnosing exposure of a patient to HCV or for predicting a patient's clinical course following HCV infection. The peptides provoke the activation of cytotoxic T cells which attack any cell infected with HCV.
                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus core peptide(s) stimulate cytotoxic T lymphocyte response - used for prevention, treatment or diagnosis of HCV
                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus; cytotoxic T lymphocyte; vaccine; immunisation; diagnosis; HCV; CTL; core; HLA.
                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                Hepatitis C virus core peptide used for treating HCV infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 16;
                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 51; DB 16;
llarity 100.0%; Pred. No. 0.00056;
Conservative 0; Mismatches 0;
                                                                                                               100.0%; Score 51; DB 22; 100.0%; Pred. No. 0.00052;
                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (USSH ) US DEPT HEALTH & HUMAN SERVICES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Shirai M;
                                                                                                                                                                                                                                                    AAR87651 standard; peptide; 16 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 5; Page 45; 58pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94US-0224973.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Feinstone S,
                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1995-366355/47.
                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                              Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                 1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus.
                                                                            15 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Berzofsky JA,
                                                                                                                                                                                                                                                                                                       20-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-APR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                    W09527733-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                             19-0CT-1995.
                                                                                                                                         10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Infection
                                                                                                                                                                                                                                                                              AAR87651;
                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                               7.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12
                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                       qq
  88888888
                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pp
                                                                                                                                                                                                                                                                                                                                                                                                         ó;
                                                                                                                                                                                                                                                              The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding mottlfs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                 A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                        ,
0
                                                                                                                                                    ä
                                                                                                                                                  Chesnut
                                                                                                                                                                                                                                                                                                                                                                                Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                 Livingston BD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Livingston BD,
, HM;
                                                                                                                                                                                                                                                                                                                                                                              Score 51; DB 22;
Pred. No. 0.00052;
Mismatches 0;
                                                                                                                                                  S, Livir
Grey HM;
                                                                                                                                                                                                                                      Disclosure; Page 178; 214pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S, L
Grey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 5; Page 198; 214pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAJ03985 standard; Peptide; 15 AA.
                                                                                                                                                  Southwood S
Kubo RT, C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus epitope #3976.
                                                                                                                                                                                                                                                                                                                                                                              100.0%; Solilarity 100.0%; P. Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Southwood
Kubo RT,
                                                                         19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                           (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sidney J,
Celis E,
                                                                                                                                                 Sette A, Sidney J,
Baker DM, Celis E,
                                                                                                                                                                                      WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-308046/32.
                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ADLMGYIPLV 10
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                          15 AA;
                        WO200121189-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-JUL-1999;
                                                                                                  19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-JUL-2001
                                                 29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sette A,
Baker DM,
                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAJ03985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAJ03985
 ò
```

AAY25210

```
A T-cell stimulating peptide is claimed which is ca. 5-20 amino acids long and part of the core protein of HCV and is recognised by and stimulates T-cells. A CD8-DOSI(ive T-cell stimulating peptide has the sequence given in ARR56606 (NP-9) or AAR56616 (9MA). A CD4-POSI(ive T-cell stimulating peptide has the sequence given in AAR56609 (NP-1). Synthetic peptide mixts. (Mix A: NP-1 - NP-12) or AAR56614 (NP-17). Synthetic peptide mixts. (Mix A: NP-1 - NP-5, Mix B: NP-6 - NP-10, Mix C: NP-11 - NP14, MixD: NP-15 - NP-18) were used in experiments to evaluate activity.

Peptides 9MA, 9CM and 9CA (AAR56616-18) are variants of peptide NP-9.
                                                                                                                                                                                                                                                                                                                                                                                                                      epitope present in the core protein region of Hepatitis C (HCV) - used for activation of cellular immunity mechanisms
                                                   Hepatitis C virus; HCV; core protein; epitope; T-cell; Ammunity;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis C virus; HCV; core protein; epitope; T-cell; immunity;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.0%; Score 51; DB 15; Best Local Similarity 100.0%; Pred. No. 0.00073; Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Fig 2; 14pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR56611 standard; protein; 20 AA.
                                                                                                                                                                                                                                                                                                                       (ASAH ) ASAHI KASEI KOGYO KK.
(INOM/) INOMAWARI M.
                                                                                                                                                                                                                                                                 92JP-0228965.
92JP-0299691.
                                                                                                                                                                                                                             93JP-0076791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93JP-0076791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92JP-0228965
92JP-0299691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1994-269451/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HCV peptide NP-14.
               HCV peptide NP-13.
                                                                                                             Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20 AA;
                                                                                                                                                   JP06199894-A
                                                                                                                                                                                                                           02-APR-1993;
                                                                                                                                                                                                                                                                 27-AUG-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JP06199894-A.
                                                                                                                                                                                                                                                                                   10-NOV-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                          virus (HCV)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          02-APR-1993;
                                                                                                                                                                                       19-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-AUG-1992;
10-NOV-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-JUL-1994
                                                                         CD8; CD4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR56611;
                                                                                                                                                                                                                                                                                                                                                                                                                      cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 1
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein (HSP) complexes comprises adding a heat shock protein to a denatured protein matrix for binding, and adding a complexing solution comprising a peptide to elute a heat shock protein-peptide complex. A HSP-antigen complex is useful as a vaccine for treating an allergic disease (in a mammal, preferably a human) to reduce susceptibility of the Th2 response, the complex compressing a HSP-antigenic peptide complex. The complex is administered to prevent a mammal from having an allergic reaction to an allergic disease, or administered to a mammal having an allergic disease, to reduce the allergic reactions. Allergic diseases include antihistamines which treat only the symptoms, corticosteroids which have severe side effects and desensitization flexibility of use of peptide-based vaccines, as prior art HSP-based vaccines require isolation from a portion of the tumour itself. This sequence represents a peptide fragment from the HCV viral core protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                               Heat shock protein; HSP; complex; denatured protein matrix; antigen; vaccine; allergic disease; treatment; susceptibility; Th2; skin rash; allergic reaction; asthma; viral core protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthesizing heat shock protein complexes using a denatured protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This invention describes a novel method for synthesizing heat shock
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 51; DB 20; 100.0%; Pred. No. 0.00056;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                         HCV viral core protein peptide fragment 1.
       AAY25210 standard; peptide; 16 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR56610 standard; protein; 20 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 1; Fig 1B; 33pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      UYNE-) UNIV NEW MEXICO STATE.
                                                                                                                                                                                                                                                                                                                                                                                               97US-0986234.
                                                                                                                                                                                                                                                                                                                                                         98WO-US25734
                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24-MAR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 100.
ses 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wallen ES;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-394912/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 adlmgyiplv 12
                                                                                                                                                                                                                                           Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16 AA;
                                                                                                                                                                                                                                                                               409929182-A1.
                                                                                     03-SEP-1999
                                                                                                                                                                                                                                                                                                                                                       04-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                             05-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                              05-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Moseley PL,
                                                                                                                                                                                                                                                                                                                   17-JUN-1999
                                               AAY25210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               which is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR56610;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
```

Best Loca Matches

RESULT 13

q à

AAR56610

ü Z Z Z Z

ö

Gaps

ö

Indels Length

0; Gaps

Length 20;

```
100.0%; Score 51; DB 16; ilarity 100.0%; Pred. No. 0.00073; Conservative 0; Mismatches 0;
                                                                                                                                                                                             Search completed: August 23, 2002, 10:00:57 Job time: 387 sec
                            Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                               1 ADLMGYIPLV 10
                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                        A T-cell stimulating peptide is claimed which is ca. 5-20 amino acids long and part of the core protein of HCV and is recognised by and stimulates T-cells. A CD8-DOSITIVE T-cell stimulating peptide has the sequence given in ARR56606 (NP-9) or ARR56616 (9MA). A CD4-DOSITIVE T-cell stimulating peptide has the sequence given in ARR56609 (NP-12) or ARR56614 (NP-17). Synthetic peptide mixts. (Mix A: NP-1 NP-5, Mix B: NP-6 - NP-10, Mix C: NP-11 - ND14, MixD: NP-15 - NP-18) were used in experiments to evaluate activity.

Peptides 9MA, 9CM and 9CA (AARS5616-18) are variants of peptide NP-9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A series of overlapping peptides (including the present sequence) was synthesised based on sequences in the core, B1 and B2/NB1 regions of hepatitis C virus. The peptides were used as antigens in Tymphopoliferative assays to identify the main T-cell epitopes.
                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C Virus immunogenic polypeptide contg. a T-cell stimulating epitope - from core, El, E2 and NS3 regions, useful in production of vaccines, therapeutic agents, etc.
                                                                          T cell epitope present in the core protein region of Hepatitis C virus (HCV) - used for activation of cellular immunity mechanisms
                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus; HCV; immunogen; core region; nucleocapsid; immunodominant; T cell epitope; vaccine.
                                                                                                                                                                                                                                                                                                                                                                          Length 20;
                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus peptide CORE 21 (residues 121-140).
                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.0%; Score 51; DB 15; Best Local Similarity 100.0%; Pred. No. 0.00073; Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Maertens G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example 4; Page 51; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR84500 standard; peptide; 20 AA.
                                                                                                                             Disclosure; Fig 2; 14pp; Japanese.
(ASAH ) ASAHI KASEI KOGYO KK.
(INOM/) INOMAWARI M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94WO-EP03555.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93EP-0402718.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Deleys R, Leroux-Roels G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (INNO-) INNOGENETICS NV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1995-193822/25.
                                             WPI; 1994-269451/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                         20 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W09512677-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-JAN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-MAY-1995
                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR84500;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR84500
Op
```

```
168,
169,
170,
171,
172,
173,
175,
175,
187,
188,
189,
190,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
           Sednence
                                                                                                             Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                Sequence 1, Application US/08214650

Patent NO: 5708955

GENERAL INFORMATION:
APPLICANT: Chisari, Francis V.
APPLICANT: Cerrny, Andreas
ITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
CORRESPONDERS: Leydig, Voit & Mayer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.0%; Score 51; DB 1; Length 10; Best Local Similarity 100.0%; Pred. No. 0.00028; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM: PC-FOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
US-08-290-665A-165
US-08-290-665A-166
US-08-290-665A-167
US-08-290-665A-169
US-08-290-665A-170
US-08-290-665A-171
US-08-290-665A-171
US-08-290-665A-174
US-08-290-665A-175
US-08-290-665A-176
US-08-290-665A-187
US-08-290-665A-188
US-08-290-665A-189
US-08-290-665A-189
US-08-290-665A-189
US-08-290-665A-189
US-08-290-665A-190
US-08-290-665A-190
US-08-290-665A-190
US-08-290-665A-190
US-08-290-665A-190
US-08-290-665A-190
                                                                                                                                                                                                                                                                                                                   E: Leydig, Voit & Mayer
Two Prudential Plaza, Suite 4900
                                                                                                                                                                                      ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/214,650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61230
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY AGENT INFORMATION:
NAME: Silvert, Donald J.
REGISTRATION NUMBER: 37552
REFERENCE/DOCKET NUMBER: 6123(
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 616-5600
TELEX: 25-353
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                   MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: single
TOPOLOGY: unknown
   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: peptide US-08-214-650-1
                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                       STREET: TWO
 1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
                                                                                                                                                                                                                                                                                                                                            ÎL
USA
                                                                                                                                                                                                                                                                                                                                                                 60601
                                                                                                                                                                                                                                                                                                                                              STATE: I
                                                                                                                                                                                                                          US-08-214-650-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
  δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             , Appl
, Appl
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Appl
                                                                          (without alignments)
3.954 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Appli
                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 163,
Sequence 164,
                                                                Search time 61.77 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/pcTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/pcTUS_COMB.pep:*
                    Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-290-665A-155
US-08-290-665A-156
US-08-290-665A-157
US-08-290-665A-158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-290-665A-160
US-08-290-665A-161
US-08-290-665A-162
US-08-290-665A-163
US-08-290-665A-164
                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-986-234-34
US-08-324-977-18
US-08-304-686A-18
US-09-315-850-18
US-08-444-818-91
US-08-447-4108-16
US-08-407-4108-16
US-08-485-500-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT-US91-02370-16
US-08-854-531-2
PCT-US95-13552-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-836-075A-66
US-08-444-818-93
US-07-681-701-16
                                                                                                                                                                                   of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-078-271B-1
                                                                                                                                                                  231628 seqs, 24425594 residues
                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
         GenCore version Copyright (c) 1993 - 2000
                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                              protein search, using sw model
                                                               August 23, 2002, 09:54:30
                                                                                                                                        BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                      Issued_Patents_AA:*
                                                                                                                                                                                                      length: 0
length: 2000000000
                                                                                                  US-08-854-825-1
51
                                                                                                                     1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
Match I
                                                                                                                                                                                                                                                                                                                                                                                                                             sed
                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                   Total number
                                              OM protein
                                                                                                                                                                                                      B B
                                                                                                                     Sequence:
                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                      Minimum
                                                                                                                                                                                                               Maximum
                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                   Result
No.
```

a

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 51; DB 1; Length 76. 100.0%; Pred. No. 0.0027; uismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: U.S.A.
ZIP: 20006
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/NS-DOS, Version 5.0
APPLICATION NUMBER: US 07/769,996
FILING DATE: 02-0CT-1991
APPLICATION DATA:
APPLICATION NUMBER: US 07/635,451
FILING DATE: 28-DEC-1990
ATTORNEY/AGENT INFORMATION:
NAME: Stevens-Smith, Theresa M.
REGISTRATION NUMBER: 36,281
REGISTRATION NUMBER: 36,281
REFERNCE/DOCKET NUMBER: 900703D
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEX: 440142
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 76 amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/769,996
FILING DATE: 02-0CT-1991
APPLICATION NUMBER: JP 2-167466
FILING DATE: 25-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 25-JUN-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-230921
FILING DATE: J1-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
FILING DATE: 09-NOV-1990
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/384,616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 18, Application US/08384616 Patent No. 5847101 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                ; MOLECULE TYPE: protein US-08-324-977-18
                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
|||||||||
16 ADLMGYIPLV 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-384-616-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                           APPLICANT: Wallen, et al.

APPLICANT: Wallen, et al.

ITITE OF INVENTION: Methods for Synthesizing Heat Shock Protein Complexes
FILE REFERENCE: UNME-0008-1

CURRENT APPLICATION NUMBER: US/08/986,234

CURRENT FILING DATE: 1997-12-05

NUMBER OF SED IN OS: 114

SOFTWARE: Patentin Ver. 2.0

SQT ID NO 34

LENGTH: 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ·;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 51; DB 2; Length 16; 100.0%; Pred. No. 0.00047;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: MCATAMA, HITOTO
APPLICANT: FUKE, ISAO
APPLICANT: FOREX, ISAO
APPLICANT: TAKAMIZAWA, Akahisa
APPLICANT: TAKAMIZAWA, Akahisa
APPLICANT: TAKAMIZAWA, Akahisa
TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC
TITLE OF INVENTION: CDNA AND ANTIGEN POLYPEPTIDE
NUMBER OF SEQUENCES: 50
CORRESPONDENCE ADDRESS:
ADDRESSEE: NAMETION, MCLeland &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/324,977
FILING DATE: 18-0CT-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-167466
FILING DATE: 25-UN-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-230921
FILING DATE: 31-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
FILING DATE: 09-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
FILING DATE: 30-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JS 08/099,706
FILING DATE: 30-JUL-1993
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 1725 K St. N.W. Suite 1000
CITY: Washington
STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 18, Application US/08324977
Patent No. 5747339
GENERAL INFORMATION:
APPLICANT: OKAYAMA, HIROLO
                                                                                                           Sequence 34, Application US/08986234
Patent No. 5981706
                                                                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Hepatitis C virus US-08-986-234-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20006
      1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 ADEMGYIPLV 12
                                                                  RESULT 2
US-08-986-234-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 3
US-08-324-977-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
```

g ठे

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 51; DB 2; Length 76; 100.0%; Pred. No. 0.0027; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: FUKE, ISAO
APPLICANT: MORI, Chisato
APPLICANT: TAKAMIZAWA, AKAhisa
APPLICANT: TAKAMIZAWA, AKAhisa
APPLICANT: TOSHIDA, IWAO
TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC
TITLE OF INVENTION: CONA AND ANTIGEN POLYPEPTIDE
NUMBER OF SEQUENCES: 50
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Armstrong, Westerman, Hattori, McLeland &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Naughton
1725 K St. N.W. Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION DATA:
APPLICATION NUMBER: US/08/904,686
FILING DATE: 01-AUG-1997
APPLICATION NUMBER: US 08/324,977
FILING DATE: 18-OCT-1994
PRIOR APPLICATION DATA:
                         FILING DATE: 02-OCT-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/635,451
FILING DATE: 28-DEC-1990
ATTORNEY/AGENT INFORMATION:
       APPLICATION NUMBER: US 07/769,996
FILING DATE: 02-OCT-1991
                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 900703G
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 659-2930
TELEFAX: (202) 887-0357
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/315,850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-230921
FILING DATE: 31-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
FILING DATE: 09-NOV-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: JP 2-167466 FILING DATE: 25-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 18, Application US/09315850
Patent No. 6217872
GENERAL INFORMATION:
APPLICANT: OKAYAMA, Hiroto
                                                                                                                                      NAME: McLeland, Le-Nhung
REGISTRATION NUMBER: 31,541
                                                                                                                                                                                                                                                                                                                         LENGTH: 76 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                   ; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-904-686A-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: U.S.A.
ZIP: 20006
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16 ADLMGYIPLV 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 6
US-09-315-850-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 51; DB 2; Length 76; 100.0%; Pred. No. 0.0027; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: OKAYAMA, HITOLO
APPLICANT: FUKE, Isao
APPLICANT: MORI, Chisato
APPLICANT: TAKAMIZANA, Akahisa
APPLICANT: TAKAMIZANA, Akahisa
APPLICANT: YOSHIDA, Iwao
TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC
TITLE OF INVENTION: CDNA AND ANTIGEN POLYPEPTIDE
NUMBER OF SEQUENCES: 50
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Armstrong, Westerman, Hattori, McLeland & ADDRESSEE: Naughton STREET: 1725 K St. N.W. Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/904,686A
FILING DATE: 01-AUG-1997
PRIOR APPLICATION NUMBER: US 08/324,977
FILING DATE: 18-CCT-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-167466
FILING DATE: 25-JUN-1990
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: JP 2-230921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 09-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/099,706
FILING DATE: 30-JUL-1993
PRIOR APPLICATION DATA:
                                                               NAME: Stevens Smith, Theresa M. REGISTRATION NUMBER: 36,281
REPERENCE/DOCKET NUMBER: 900703B
TELEPHONE: (202) 659-2930
TELEPHONE: (202) 887-0357
TELEX: 440142
INFORMATION FOR SEO ID NO: 18: SEQUENCE CHARACTERISTICS:
LENGTH: 76 amino acids
TYPE: amino acid
APPLICATION NUMBER: US 07/635,451 FILING DATE: 28-DEC-1990 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-904-686A-18; Sequence 18, Application US/08904686A; Patent No. 5998130; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JMBER: JP 2-230921
31-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-384-616-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILLING DATE: 31-AUG-1
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 20006
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET: 1725 K St
CITY: Washington
STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16 ADLMGYIPLV 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
```

qq δy

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                     100.0%; Score 51; DB 4; Length 135; 100.0%; Pred. No. 0.0051; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.0%; Score 51; DB 1; Length 150; Best Local Similarity 100.0%; Pred. No. 0.0057; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURREWT APPLICATION DATA:
APPLICATION NUMBER: US/O7/681,703B
FILING DATE: 05-APR-1991
CLASSIFICATION 1435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 505,611
FILING DATE: 06-APR-1990
PRIOR APPLICATION NUMBER: US 594,854
FILING DATE: 09-OCT-1990
ATPORNEY/AGENT INFORMATION:
NAME: Fabian, Gary R. 33,875
REFERENCE/DOCKET NUMBER: 4600-076.21
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Reyes, Gregory
APPLICANT: Kim, Jungsuh P.
APPLICANT: Moeckli, Randolph
TITLE OF INVENTION: Hepatitis C Virus Epitopes
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Dehlinger & Associates
STREET: 350 Cambridge Ave., Suite 250
CITY: Palo Alto
STATE: CA
COUNTRY: USA
ZIP: 94306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-07-681-703B-16; Sequence 16, Application US/07681703B Patent No. 544396; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 9
US-08-407-410B-16
; Sequence 16, Application US/08407410B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 150 amino acids
TYPE: amino acid
                                                                                                                                                                     Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                              ; MOLECULE TYPE: protein US-08-444-818-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear

MOLECULE TYPE: protein

US-07-681-703B-16
                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                       1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                        1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 51; DB 4; Length 76; 100.0%; Pred. No. 0.0027; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 91, Application US/08444818
Fatent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
TITLE OF INVENTION: NAIBLE OF INVENTION: NANBV Diagnostics and Vaccines NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSE: Chiron Corporation
STRRET: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: DAY
COMPUTER: DAY
SOFTWARE: PATENTING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTING Release #1.0, Version #1.30
APPLICATION DATA:
APPLICATION NUMBER: US/08/444,818
                                                           FILING DATE: 30-01/193, 700
FILING DATE: 30-01/193
PRIOR APPLICATION NATA:
APPLICATION NUMBER: US 07/769,996
FILING DATE: 02-0CT-1991
PRIOR APPLICATION NUMBER: US 07/635,451
FILING DATE: 28-DEC-1990
ATTORNEY/AGENT INFORMATION:
NAME: MCLEARA, LE-Nhung
REGISTRATION NUMBER: 31,541
REFERENCE/DOCKET NUMBER: 900703G
TELECHONDICATION INFORMATION:
TELECHONER: (202) 659-2930
TELECHONER: (202) 659-2930
TELECHONER: (202) 659-2930
TELEFAX: (202) 887-0357
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 76 amino acids
TYPE: mino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14 "AR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Harbin, Alisa A.
REGISTATION NUMBER: 0110.002
REFERRUCE/DOCKET NUMBER: 0110.002
TELECOMMUNICATION INFORMATION:
TELEFANCE (508)359-3876
TELEFAX: (508)359-3876
INFORMATION FOR SEQ ID NO: 91:
SEQUENCE CHARACTERISTICS:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/099,706
FILING DATE: 30-JUL-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 135 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear

MOLECULE TYPE: protein

US-09-315-850-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16 ADLMGYIPLV 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-444-818-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 100.0%; Score 51; DB 2; Length 150; Best Local Similarity 100.0%; Pred. No. 0.0057; Matches 10; Conservative 0; Mismatches 0; Indels
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
ODFRATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/485,500
FILING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/407,410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US91/02370
FILING DATE: 19910405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 16, Application PC/TUS9102370
GENERAL INFORMATION:
APPLICANT: Reyes, Gregory
APPLICANT: Kim, Jungsuh P.
APPLICANT: Moeckli, Randolph
APPLICANT: Simonsen, Christian C.
TITLE OF INVENTION: Hepatitis C virus Epitopes
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Fabian, Gary R.
REGISTRATION NUMBER: 33,875
REFERENCE/DOCKET NUMBER: 4600-076.21
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 323-8302
INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHARACTERISTICS:
LENGTH: 150 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 19910405
CLASSIFICATION: 435.5
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 505,611
FILING DATE: 06-APR-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 594,854
FILING DATE: 09-OCT-1990
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                    FILING DATE:
APPLICATION NUMBER: US 505,611
FILING DATE: 06-APR-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 594,854
FILING DATE: 09-OCT-1990
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEE: Peter J. Dehlinger: P.O. BOX 60850
Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; MOLECULE TYPE: protein US-08-485-500-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 94306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
STREET: P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 11
PCT-US91-02370-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 51; DB 2; Length 150;
Pred. No. 0.0057;
; Mismatches 0; Indels
            GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Kim, Jungsuh P.
APPLICANT: Meeckli, Randolph
APPLICANT: Simonsen, Christian C.
TITLE OF INVENTION: Hepatitis C Virus Epitopes
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Peter J. Dehlinger
STREET: 350 Cambridge Ave., Suite 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 16, Application US/08485500
Patent No. 5843639
GENERAL INFORMATION:
APPLICANT: Kim, Jungsuh P.
APPLICANT: Moeckli, Randolph
APPLICANT: Simonsen, Christian C.
TITLE OF INVENTION: Hepatitis C Virus Epitopes
CORRESPONDENCE ADDRESS:
ADDRESSEE: Peter J. Dehlinger
STREET: 350 Cambridge Ave., Suite 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/407,410B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NOTE:
CLASSIFICATION: 435
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 505,611
FILING DATE: 06-APR-1990
PRIOR APPLICATION NUMBER: US 594,854
FILING DATE: 09-OCT-1990
ATTORNEY/AGENT INFORMATION:
NAME: Fabian, Gary R.
REFERENCE/DOCKET NUMBER: 4600-076.21
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION INFORMATION POR SEQ ID NO: 16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 150 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 100.
Matches 10, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; MOLECULE TYPE: protein US-08-407-410B-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                    STREET: 350 Cambi
CITY: Palo Alto
STATE: CA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Palo Alto
STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                   94306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-485-500-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

Gaps

```
USA
                                                                                                                                                                                                                                                                                                                                                                                                      19103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-836-075A-66
                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                               STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Woodcock, Washburn, Kurtz, Mackiewicz & No. 6025341ris
STREET: One Liberty Place, 46th floor
CITY: Philadelphia
STATE: PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Wands, Jack
APPLICANT: Wands, Jack
APPLICANT: Tokushige, Katsutoshi
APPLICANT: Wakita, Takaji
TITLE OF INVENTION: CHIMERIC HEPATITIS B/HEPATITIS C VIRUS VACCINE
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
0
                                                                                                                                                                                                                                                                                                 100.0%; Score 51; DB 5; Length 150; ilarity 100.0%; Pred. No. 0.0057; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 51; DB 3;
100.0%; Pred. No. 0.0059;
Live 0; Mismatches 0
NAME: Fabian, Gary R.
REGISTRATION NUMBER: 33,875
REFERENCE/DOCKET NUMBER: 4600-076.41
TELECOMUNICATION INFORMATION:
TELEPHONE: (415) 323-8302
INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHARACTERISTICS:
LENGTH: 150 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: DeLuca, Mark
REGISTRATION UNUBER: 33,229
REFRENCE/DOCKET NUMBER: APOL-0214
TELECOMMUNICATION INFORMATION:
TELEPHONE: (215) 568-3100
TELEPHONE: (215) 568-3309
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
ZIF: 19103
COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBW PC COMPALIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WordPerfect 5.1
CURRENT APPLICATION DATA:
RPLICATION NUMBER: US/08/854,531
FILING DATE: Herewith
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-854-531-2; Sequence 2, Application US/08854531; Patent No. 6025341; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 154 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                       TOPOLOGY: linear

MOLECULE TYPE: protein

PCT-US91-02370-16
                                                                                                                                                                                                                                                                                                                                                                                                        131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino acid
                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-854-531-2
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
```

```
Sequence 66, Application US/08836075A -
Sequence 66, Application US/08836075A -
Sequence 66, Application US/08836075A -
Septent No. 6180768 -
GENERAL INFORMATION:
APPLICANT: MAERTENS, GERT
APPLICANT: STUTVER, LIEVEN
TITLE OF INVENTION: NEW SEQUENCES OF HEPATITIS C VIRUS GENOTYPES
TITLE OF INVENTION: AND THEIR USE AS PROPHYLACTIC, THERAPEUTIC AND DIAGNOSTIC
TITLE OF INVENTION: AGENTS
NUMBER OF SEQUENCES: 207
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 51; DB 5; Length 154; 100.0%; Pred. No. 0.0059; O. Mismatches 0; Indels
                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Woodcock, Washburn, Kurtz, Mackiewicz & ADDRESSEE: Norris
                                          APPLICANT: Wands, Jack
APPLICANT: Wands, Jack
APPLICANT: Tokushige, Katsutoshi
APPLICANT: Waxita, Takaji
APPLICANT: Zurawski, Jr., Vincent R.
APPLICANT: Concey, Leslie R.
APPLICANT: Concey, Leslie R.
APPLICE OF INVENTION: HEPATITIS VIRUS VACCINES
NUMBER OF SEQUENCES: 18
                                                                                                                                                                                                                                                                                                                                              STREET: One Liberty Place, 46th floor CITY: Philadelphia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WordPerfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/13552
FILING DATE: Herewith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/467,859
FILING DATE: 06-JUN-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: DeLuca, Mark
REGISTRATION NUMBER: 33,229
REFERENCE/DOCKET NUMBER: APOL-0238
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/318,248
FILING DATE: 05-OCT-1994
Sequence 2, Application PC/TUS9513552 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (215) 568-3100
TELEFAX: (215) 568-3439
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
Best Local Similarity 100.(
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 ADLMGYIPLV 10
```

Gaps

```
Query Match 100.0%; Score 51; DB 4; Length 169; Best Local Similarity 100.0%; Pred. No. 0.0065; Matches 10; Conservative 0; Mismatches 0; Indels
                   NAME: Harbin, Allsa A.
REGISTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 0110.002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (508)359-3876
TELEPHONE: (508)359-3876
TELEPHONE: (508)359-3876
TELEPHONE: CHARACTERISTICS:
LENGRATION FOR SEQ ID NO: 93:
SEQUENCE CHARACTERISTICS:
LENGRATION FOR SEQ ID NO: 709:
TYPE: amino acids
TYPE: amino acids
TYPE: amino acids
TYPE: 110ear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Search completed: August 23, 2002, 09:57:50 Job time: 200 sec
    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: protein US-08-444-818-93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123 ADLMGYIPLV 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                   OPERATING SYSTEM: PC-LOUS/MS-DUS
SOFTWARE: MICROSOFT WORD 6.0 / ASCII text output
CURRENT APPLICATION DATA:
APPLICATION DATA:
FILING DATE: 21 Apr 1997
PRIOR APPLICATION NUMBER: PCT/EP95/04155
FILING DATE: 23 Oct 1995
PRIOR APPLICATION NUMBER: EP 94870166.9
FILING DATE: 21 Oct 1994
PRIOR APPLICATION NUMBER: EP 95870076.7
FILING DATE: 22 Oct 1994
PRIOR APPLICATION NUMBER: EP 95870076.7
FILING DATE: 22 Jun 1995
ATTORNEY/AGENT INRORMATION:
NAME: KAMMERER, PATRICIA A.
REGISTRATION NUMBER: 29,775
REGISTRATION NUMBER: 29,775
SEQUENCE CHARACTERISTICS:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 93, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, William J.
TITLE OF INVENTION: NANBV Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMpatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURREMY APPLICATION NUMBER: US/08/444,818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.0%; Score 51; DB 4;
Best Local Similarity 100.0%; Pred. No. 0.0061;
Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ADDRESSEE: ARNOLD, WHITE & DURKEE STREET: P.O. BOX 4433
CITY: HOUSTON
STATE: TEXAS
                                                                                  COUNTRY: USA
ZIP: 77210-4433
COMPUTER READABLE FORM:
MEDLUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  : 158 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-836-075A-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 ADLMGYIPLV 10
                                                                    TEXAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-444-818-93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
```

```
August 23, 2002, 09:54:30 ; Search time 78.82 Seconds (without alignments) 12.191 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                               283138
GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                       283138 seqs, 96089334 residues
                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                                                                                               BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                      US-08-854-825-1
51
1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                        Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                               Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution. PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:* Database

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

STIMMAPIFIC

	Description	genome polyprotein	റ	o.		genome polyprotein	structural protein	polyprotein - hepa	polyprotein - hepa	genome polyprotein		genome polyprotein		genome polyprotein	hypothetical prote	polypeptide - hepa	genome polyprotein	genome polyprotein	genome polyprotein		genome polyprotein	genome polyprotein		genome polyprotein		genome polyprotein				
SUMMARIES	ID	PS0388	S32740	JN0265	S21471	PC2060	PC2061	S12707	S41288	PC1284	A44150	JQ1925	JQ1926	JH0711	JQ1584	S18031	S18032	S19875	PN0677	PC2219	GNWVTC	GNWVCJ	A45573	S18030	GNWVTW	GNWVC3	GNWVCH	S40770	JQ0883	JQ0881
	DB	7	7	7	7	7	7	7	7	7	7	7	7	7	7	~	7	7	7	~		-	Н	Н	Н	Н	Н	-	~	7
	Query Match Length	178	189	322	369	411	411	441	492	513	513	520	523	550	640	782	782	782	787	876	3010	3010	3010	3010	3010	3011	3011	3011	874	874
dР	Query	100.0	100.0			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.1	4
	Score	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	21	51	51	51	51	51	51	48	48
	Result No.	1	2	е	4	2	9	7	80	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29

genome polyprotein	genome polyprotein	genome polyprotein	genome polyprotein	rod shape-determin	hypothetical prote	phospho-beta-galac	hypothetical prote	precorrin-3 methyl	hypothetical prote	hypothetical prote	hypothetical prote	· protein F1N21.18 [hypothetical prote	probable precorrin	nicotinic acetylch
JQ1303	GNWVJ8	S19876	JC5620	H72325	A70529	JE0395	B86635	T03534	60969н	B84204	AE1083	A96697	T22513	T51115	ACHUA7
-		~	_	~	7	~	N	~	~	7	7	~	7	7	Н
3033	3033	782	3014	340	252	482	218	245	297	344	107	240	241	242	502
94.1	94.1	86.3	80.4	74.5	72.5	72.5	9.07	9.07	9.07	9.07	68.6	9.89	9.89	9.89	68.6
48 94.1	48 94.1	44 86.3			37 72.5										35 68.6

ALIGNMENTS

RESULT 1 SEGURA 1 SERVITA 1 SE
--

a

```
C. Superfamily: hepatitis C virus genome polyprotein
C. Keywords: ATP: capsid protein; envelope protein; glycoprotein; nonstructural protein
F;192-383/Product: envelope protein EI #status predicted <SPS>
F;384-411/Product: nonstructural protein E2/NS1 #status predicted <NPS>
F;196,209,234,305,325/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                   N; Contains: envelope protein EI; nonstructural protein E2/NS1
C; Species: hepatitis C virus
C; Species: hepatitis C virus
C; Date: 14-Jul-1994 #sequence_revision 14-Jul-1994 #text_change 17-Nov-2000
C; Accession: PC2060
R; Li, J.S.; Vitvitski, L.; Tong, S.P.; Trepo, C.
Biochem. Biophys. Res. Commun. 199, 1474-1481, 1994
A; Title: Identification of the third major genotype of hepatitis C virus in France.
A; Reference number: PC2060; MUID: 94197744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genome polyprotein N2 - hepatitis C virus
N;Contains: envelope protein E1; nonstructural protein E2/NS1
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Date: 14-Jul-1994 #sequence_revision 14-Jul-1994 #text_change 17-Nov-2000
C;Accession: PC2061
R;Li, J.S.; Vitvitski, L.; Tong, S.P.; Trepo, C.
Biochem. Biophys. Res. Commun. 199, 1474-1481, 1994
A;Fitle: Identification of the third major genotype of hepatitis C virus in France.
A;Reference number: PC2060; MUID:94197744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 51; DB 2; Length 411; 100.0%; Pred. No. 0.05; Live 0; Mismatches 0; Indels
                                                        genome polyprotein N1 - hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                               A; Accession: PC2060
A; Molecule type: mRNA
A; Residues: 1-411 <LIJ>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PC2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Accession: JN0265
R; Fuchs, K.; Motz, M.; Schreier, E.; Zachoval, R.; Deinhardt, F.; Roggendorf, M. Gene 103, 163-165, 1991
A; Title: Characterization of nucleotide sequences from European hepatitis C virus isolat A; Reference number: JN0265; MUID: 91365241
A; Reference number: JN0265
A; Accession: JN0265
A; Accession: JN0265
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG>A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues: 1-322 < FUG
A; Molecule type: genomic RNA
A; Residues predicted (RNA)
A
                                                                                                                                                                                                                                                                                                                                                                                                  genome polyprotein - hepatitis C virus (isolate GM2) (fragments)
N;Contains: amino end of envelope protein M; carboxyl end of capsid protein C; fragment C;Species: hepatitis C virus
A;Note: host Homo sapiens (man)
C;Date: 09-Oct-1992 #sequence_revision 09-Oct-1992 #text_change 17-Nov-2000
                                                                                       ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genome polyprotein - hepatitis C virus (fragment)
N;Contains: capsid protein; envelope protein
C;Species: hepatitis C virus
C;Date: 20-Feb-1995 #sequence_revision 19-Apr-1996 #text_change 17-Nov-2000
C;Accession: S21471
R;Nogam, W.K.
submitted to the EMBL Data Library, April 1992
A;Reference number: S21471
A;Reference number: S21471
A;Residues: 1-369 AMOG>
A;Coss-references: EMBL;X65924; NID:g59466; PIDN:CAA46717.1; PID:g59467
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: capsid protein; envelope protein; glycoprotein;
                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
               Length 189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 322;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
       Score 51; DB 2; L
Pred. No. 0.023;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 51; DB 2; L
100.0%; Pred. No. 0.045;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 51; DB 2;
100.0%; Pred. No. 0.039;
ilve 0; Mismatches 0
Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 10; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                         131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    125 ADLMGYIPLV 134
                                                                                                                                               1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     П
                                                                                                                                                                                                                                                                                                                                                                       JN0265
                                                                                                                                                                                                                   g
                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

ó

Gaps

.; 0

```
A Accession: PC2061
A;Molecule type: mRNA
A;Residues: 1-411 <LIJ>
A;COSS-references: GB:L12355; NID:g410169; PIDN:AAA20155.1; PID:g410170
C;Superfamily: hepatitis C virus genome polyprotein
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: AFP; capsid protein; envelope protein; glycoprotein; nonstructural protein
C;192-383/Product: envelope protein E1 #status predicted <SPE>
F;384-411/Product: nonstructural protein E2/NS1 #status predicted <NE>
F;196,209,234,305,325/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Y.; Boonmar, S.; Watanabe, Y.; Katayama, T.; Choo, Q.L.; Kuo, G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     core and envelope genes of the hepatitis C virus geno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N.Contains: core protein: envelope protein
C.Species: hepatitis C virus
C.Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 17-Nov-2000
C.Accession: S12707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 51; DB 2; Length 411; 100.0%; Pred. No. 0.05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genome polyprotein - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Takeuchi, K.; Kubo, Y.; Boonmar, S.; Wat
Nucleic Acids Res. 18, 4626, 1990
A;Title: Nuclectide sequence of core and e
A;Reference number: $12707; MUID:90356432
A;Accession: $12707
```

m

```
structural protein - hepatitis C virus
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Date: 27-Jun-1994 #text_change 17-Nov-2000
C;Accession: A44150
B;Ching, W.H.; Wychowski, C.; Beach, M.J.; Wang, H.; Davies, C.L.; Carl, M.; Bradley, Proc. Natl. Acad. Sci. U.S.A. 89, 3190-3194, 1992
A;Title: Interaction of immune sera with synthetic peptides corresponding to the stru A;Reference number: A44150
A;Reference number: A44150
A;Status: preliminary; not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R.Abe, K.; Inchauspe, G.; Fujisawa, K.
J. Gen. Virol. 73, 2725-2729, 1992
J. Gen. Virol. 73, 2725-2729, 1992
A.Title: Genomic characterization and mutation rate of hepatitis C virus isolated fro A; Reference number: J01925; MUID:93019030
A; Accession: J01925
A; Molecule type: mRNA
A; Residues: 1-520 <ABE>
A; Residues: 1-520 <ABE>
A; Cross-references: DDBJ:D10687; NID:9221544; PIDN:BAA01529.1; PID:9221545
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein
F:1-191/Product: C protein; transmembrane protein
F:1-191/Product: E1 protein #status predicted <CRP>
F:192-383/Product: E2/NS1 protein #status predicted <ER>
F:384-520/Product: E2/NS1 protein #status predicted <ER>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Outprotein - hepatitis C virus (isolate BCV-476)
N:Contains: C protein; E1 protein; E2/NS1 protein
C:Species: hepatitis C virus
C:Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 17-Nov-2000
C:Accession: J01926
R;Abe, K.; Inchauspe, G.; Fujisawa, K.
J. Gen. Virol. 73, 2725-2729, 1992
A;Title: Genomic characterization and mutation rate of hepatitis C virus isolated fro A;Reference number: J01925; MuID:93019030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JQ1925
polyprotein - hepatitis C virus (isolate HCV-KF)
N;Contains: C protein; El protein; E2/NS1 protein
C;Species: hepatitis C virus
C;Species: Nay-1994 #sequence_revision 03-May-1994 #text_change 17-Nov-2000
C;Accession: JQ1925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 513;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 51; DB 2; Length 520; 100.0%; Pred. No. 0.063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 51; DB 2; Length 53
100.0%; Pred. No. 0.063;
.ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-523 < ABE>
A; Cross-references: DDBJ:D10687
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: genomic RNA
A; Residues: 1-513 <CHI>
C; Superfamily: hepatitis C virus genome polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JQ1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genome polyprotein - hepatitis C virus (fragment)
N;Contains: core protein; envelope protein; NS1 protein
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Accession: 541288
R;Seelig, R.
submitted to the EMBL Data Library, December 1993
A;Reference number: 541288
A;Accession: 54128
A;Accession: 5412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Yoshizawa, H.; Tsuda,
                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G:Species: hepatitis C virus
C:Species: hepatitis C virus
C:Species: hepatitis C virus
C:Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 17-Nov-2000
C:Accession: PC1284
Jpn. J. Exp. Med. 60, 167-177, 1990
A:Title: The 5'-terminal sequence of the hepatitis C virus genome.
A:Reference number: PC1284; MUID:91013116
A:Reference number: PC1284
A:Rolcoule type: genomic RNA
A:Residues: 1-513 < OKA>
A:Cossreferences: GB:D00832; NID:9221513; PIDN:BAA00706.1; PID:9221514
C; Superfamily: hepatitis C virus genome polyprotein
                                                                A;Cross-references: EMBL:D00574; NID:g221656; PIDN:BAA00452.1; PID:g221657 C;Superfamily: hepatitis C virus genome polyprotein C;Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome polyprotein - hepatitis C virus (isolate HC-J4) (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.0%; Score 51; DB 2; Length 513; Best Local Similarity 100.0%; Pred. No. 0.063; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                     100.0%; Score 51; DB 2; Length 441; 100.0%; Pred. No. 0.054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                 .;
0
                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.

Best Local Similarity 100.

Matches 10; Conservative
A; Molecule type: genomic RNA A; Residues: 1-441 <TAK>
                                                                                                                                                                                                                                                                                                                                                                                                                                           131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                 1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S41288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PC1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

10

RESULT

Gaps

ö

```
genome polyprotein - hepatitis C virus (isolate JK2) (fragment)
N.Contains: core protein; envelope protein 1; nonstructural protein 2; NS1/E2 protein
C.Species: hepatitis C virus
A.Variety: isolate JK2
C.Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 17-Nov-2000
C.Accession: S18031
B.HONDA, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
Submitted to the EMBL Data Library, September 1991
A.Description: Sequence analysis of putative structural regions of Hepatitis C Virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Argherimental source: isolate JR2
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein;
C; Superdacis C virus genome polyprotein;
F; 1-191/Product: core protein #status predicted < <a href="Marga-range">Marga-range</a>
F; 192-383/Product: envelope protein #status predicted <a href="Marga-range">Marga-range</a>
F; 384-733/Product: NS1/E2 protein #status predicted <a href="Marga-range">Marga-range</a>
F; 734-782/Product: nonstructural protein 2 (fragment) #status predicted <a href="Marga-range">Marga-range</a>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 51; DB 2; Length 782; 100.0%; Pred. No. 0.095;
                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
            0.078;
                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                         ٠
ي
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Search completed: August 23, 2002, .09:56:42 Job time: 132 sec
                                  Pred.
         100.08; Pie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Cross-references: EMBL:X61593
                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: S18031
A; Molecule type: genomic RNA
A; Residues: 1-782 <HON>
                                                                                                                                                                             131 ADLMGYIPLV 140
                            Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ADLMGYIPLV 10
                                                                                                                    ADLMGYIPLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               131 ADLMGYIPLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                           S18031
                                                                                                                                                                       QQ
                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Orontains: envelope protein - hepatitis C virus (strain PRC1) (fragments)

N; Sontains: envelope protein E1; envelope protein E2; nonstructural protein NS1; nonstructurals: hepatitis C virus
C; Species: hepatitis C virus
C; Species: hepatitis C virus
C; Accession: JH0711
R; Liu, K; Hu, Z; Li, H.; Prince, A.M.; Inchauspe, G.
C; Accession: JH0711
R; Liu, St. Hu, Z; Liu, H.; Prince, A.M.; Inchauspe, G.
A; Title: Genomic typing of hepatitis C viruses present in China.
A; Reference number: JH0711; MUID: 92290283
A; Reference number: JH0711; MUID: 92290283
A; Residues: 1-550 - LIU.
A; Molecule type: genomic RNA
A; Residues: 1-550 - LIU.
A; Rosidues: 1-550 - LIU.
A; Note: the nucleotide sequence is not complete
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: envelope protein; glycoprotein; nonstructural protein; nucleocapsid; polyprodic: superfamily: hepatitis C virus genome polyprotein
C; Keywords: envelope protein E1 #status predicted CED.
F; 1190/Product: envelope protein E2 or nonstructural protein NS1 (fragment) #status predicted - NS5>
F; 191-550/Product: envelope protein E2 or nonstructural protein NS5 (fragment) #status predicted - NS5>
F; 196, 233, 250, 305, 416, 422, 447/Binding site: carbohydrate (Asn) (covalent) #status pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genome polyprotein - hepatitis C virus (strain U.K.) (fragment)
N:Contains: core protein C; envelope protein El; envelope protein E2; nonstructural prot
C:Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: genomic RNA
A; Residues: 1-640 < KUM>
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; nonstructural protein; polyprotein; left Syproduct: core protein; expedicted < CREY.
E; 1-191/Product: core protein E] # status predicted < REI>
F; 192-389/Product: envelope protein E2 and nonstructural protein NSI # status predicted < F; 196, 209, 234, 305, 417, 430, 448, 476, 580, 556, 576, 623/Binding site: carbohydrate (Asn) (cova
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   putative cor
                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C.Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 17-Nov-2000 (Accession: JQ1584  
S.Kumar, U.; Cheng, D.; Thomas, H.; Monjardino, J. J. Gen. Virol. 73, 1521-1525, 1992  
A.Title: Cloning and sequencing of the structural region and expression of FAREFerence number: JQ1584; MUID:92300349
                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                   .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                    Length 523;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 550;
                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
F;1-191/Product: C protein #status predicted <CPR>F;192-383/Product: El protein #status predicted <EIR>F;384-523/Product: E2/NS1 protein #status predicted <E2P>
                                                                                                                           100.0%; Score 51; DB 2; Ld
100.0%; Pred. No. 0.064;
utematches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 51; DB 2;
100.0%; Pred. No. 0.067;
ive 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 51;
                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                 131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                  1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: JQ1584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                      13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
```

DB 2; Length 640;

ö

Gaps

THIS PAGE BLANK (USPTO)

us-08-854-825-1.rsp

```
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

August 23, 2002, 09:54:30 ; Search time 37 Seconds (without alignments) , 10.465 Million cell updates/sec Run on:

US-08-854-825-1 51 1 ADLMGYIPLV 10 Title: Perfect score: Sequence:

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

105224 seqs, 38719550 residues Searched:

105224 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

.

	Description	954 hepatiti:	955	926	957	hepatitis		Q01403 hepatitis c	h genome	h genome	h genome	P29846 h genome po	h genome					P26661 h genome po		034329 bacillus su	Q9fyf7 arabidopsis	017883 caenorhabdi	P54131 bos taurus	P36544 homo sapien	-		P56156 helicobacte		-	8921	o	0259	30967 ch	P22071 r 3 beta-hy
SUMMARIES	ID	POLG_HCVE1	POLG_HCVH7	POLG_HCVH8	POLG_HCVTH	POLG_HCVJ2	POLG_HCVH4	POLG_HCVHK	POLG_HCVBK	POLG_HCVJA	POLG_HCVJT	POLG_HCVTW	POLG_HCV1	POLG_HCVH	POLG_HCVJ5	POLG_HCVJ7	POLG_HCVJ6	POLG_HCVJ8	YAIF_LACLA	CTAG_BACSU	Y136_ARATH	YX70_CAEEL	ACH7_BOVIN	ACH7_HUMAN	NU5M_ORNAN	PARC_NEIGO	CLPP_HELPY	CAPC_STAAU	BGLA_ECOLI	NU5M_FELCA	MLF2_MALFU	YFGE_ECOLI	PH4H_CHRVO	3BH1_RAT
	Length DB	192 1	309 1			513 1			3010 1						737 1	737 1	3033 1	3033 1	218 1	297 1		241 1											281 1	372 1
æ	Query	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	94.1	94.1	94.1	4	70.6	0	ထ	9.89	œ	œ	∞,	ထ	9	9	9	9	₩.	64.7	4	64.7
	Score	51	51	51	51	51	51	51	51	51	51	51	51	51	48	48	48	48	36	36	35	32	32	32	35	35	34	34	34	34	33	33	33	m m
	Result No.	П	7	e	4	5	9	7	æ	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	53	30		32	33

100.0%; Score 51; DB 1; Length 192; 100.0%; Pred. No. 0.013;

Query Match Best Local Similarity

P17276 drosophila Q91tm0 arabidopsis O13394 ustilago ma Q92150 helicobacte Q03004 rhodobacter Q05024 saccharomyc O34476 bacillus su O83242 treponema p P49084 g1ycine max P21632 pseudomonas O05390 bacillus su P31602 klebsiella	ALIGNMENTS T. 1 HCVEI	MAJOR ENVELOPE PROTEIN E (POTENTIAL). N-LINKED (GLCNAC) (POTENTIAL). N-LINKED (GLCNAC) (POTENTIAL). N-LINKED (GLCNAC) (POTENTIAL). N-LINKED (GLCNAC) (POTENTIAL). 98E488F4C335A84C CRC64;
PH4H_DROME C72N_ARATH CHS5_USTMA CLPP_HELPJ HUPD_RHOCA YW74_YEAST CYSM_BACSU RPOA_TREPA GBA1_SOYBN COBB_PSEDE CSBX_BACSU	ALIGNMENTS ANDARD; PRT; 192 AA. 23, Created) 40, Last sequence update) 51 Last sequence update) 60 Last annotation update) 61 Last annotation update) 62 Last annotation update) 63 Last annotation update) 64 Last annotation update) 65 Last annotation update) 67 Last annotation update) 68 Last update) 69 Last annotation update) 69 Last update) 69 Last update) 60 Last update) 61 Last update) 61 Last update) 62 Last update) 63 Last update) 64 Last update) 65 Last update) 65 Last update) 66 Last update) 66 Last update) 67 Last update) 68 Last update) 69 Last update) 69 Last update) 69 Last update) 60 Last update) 61 Last update) 62 Last update) 63 Last update) 64 Last update) 65 Last update) 65 Last update) 66 Last update) 66 Last update) 67 Last update) 67 Last update) 68 Last update) 69 Last update) 69 Last update) 69 Last update) 60 Last update) 60 Last update) 60 Last update) 61 Last update) 61 Last update) 62 Last update) 63 Last update) 64 Last update) 65 Last update) 65 Last update) 66 Last update) 67 Last update) 68 Last update) 68 Last update) 69 Last update) 69 Last update) 60 Last update) 60 Last update) 60 Last update) 61	MAJOR ENVELOPE PRO N-LINKED (GLCNAC. N-LINKED (GLCNAC. N-LINKED (GLCNAC. N-LINKED (GLCNAC. N-LINKED (GLCNAC.
PH4H_DROME C72N_ARATH CHS5_USTMA CLPP_HELPJ HUPD_RHOCA YM74_YEAST CYSM_BACSU GRAL_BACSU GRAL_SOYEN COBE_PSEDE CSBX_BACSU	PRI; ed) sequence as monotate s: Matr Fragmen Eragmen Eragmen (1) (He and viriance) (1) (He ENVE) (He ENVE) (He ENVE) (He ENVE) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	MAJO N-LI N-LI N-LI N-LI
ппппппппппппппппппппппппппппппппппппппп	eat sist (1)	rú Σξ
552 1230 1939 2195 2256 3311 4433 445 65	STANDARD; 1. 23, Cr 1. 23, La 1. 40, La ein [Cont protein E prote	>192 80 93 118 189 192 A; 20315
	STA (Rel. (R	
66666666666666666666666666666666666666	22 (R 1	76 80 93 118 189 192 192
	ALIGNMENTS 1.T 1 POLGE HOVE1 POLGE STANDARD; PRT; 192 AA. P27954, 01-AUG-1992 (Rel. 23, Created) 16-OCT-2001 (Rel. 23, Last sequence update) 16-OCT-2001 (Rel. 24), Last annotation update) Genome polyprotein [Contains: Matrix protein (En Major envelope protein E] [Fragment). Hepatitisc virus (isolate EC1) (HCV). Viruses; SSRNA positive-strand viruses, no DNA SNCIE_TAXID-11107; [1] SEQUENCE FROM N.A. MEDLIAZID-1107; [1] Weiner A.J., Brauer M.J., Rosenblatt J., Richman Crawford K., Bonino F., Saracco G., Choo QL., Han J.H.; Wariable and hypervariable domains are found in corresponding to the flavivirus envelope and NSI pestivirus envelope 112009; Weiner A.J., Brauer M.J., Rosenblatt J., Richman Corresponding to the flavivirus envelope and NSI pestivirus envelope 112009. Weiner A.J., Brauer M.J., Rosenblatt J., Richman Corresponding to the flavivirus envelope and NSI pestivirus envelope. THE ENVELOPE CONSISTS PROTEIN C AND MRNA. 1. SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLE LIPOPROTEIN ENVELOPE THE ENVELOPE CONSISTS PROTEIN C AND MRNA. 1. SUBSE-PROT entry is copyright. It is produce between the Swiss Institute of Bioinformatics Institute of Bioinformatics Institute and this statement is not removed. Use entities requires a license agreement (See http: or send an email to licensedisb-sib.ch). 1. InterPro: IPR002521; HCV_core: 1. 1. InterPro: IPR002521; HCV_core: 1. 1. Polyprotein; Glycoprotein; Coat protein; Envelop Fransmembrane. 1. MATRIX PROTEIN (POT MON_TER) 1. MATRIX PROTEIN (POT MON_TER) 1. MATRIX PROTEIN (POT MAN_TER)	CHAIN CARBOHYD CARBOHYD CARBOHYD CARBOHYD NON_TER SEQUENCE
######################################	RESULT 1 AC POLG_HOVEL 1 DOUG POLG_HOVEL 1 DOT 101-AU OIT 101-A	CHAIN CARBO CARBO CARBO CARBO NON_T
	PRESCRIPTION OF THE PRESCR	FT FT FT SO

us-08-854-825-1.rsp

321 AA.

STANDARD;

```
Genome polyprotein [Contains: Matrix protein (Envelope protein M); Major envelope protein E; Nonstructural protein NS1] (Fragment). Hepatitis C virus (isolate HCT18) (HCV). Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                   MEDLINE=91112009; PubMed=1846505;
Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J.,
Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
                                                          01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                               NCBI_TaxID=11110;
POLG_HCVH8
ID POLG_HCVH8
AC P27956;
                                                          01-AUG-1992
                                                                                                                                                    Hepacivirus
                                                                                                                                                                                                                                           Han J.H.;
                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
        ó:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELODE PROTEIN B (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
         Gaps
                                                                                                                                                                                   Genome polyprotein [Contains: Matrix protein (Envelope protein M); Major envelope protein E; Nonstructural protein NS1] (Fragment). Hepatitis C virus (isolate HCT27) (HCV).
                                                                                                                                                                                                                                                                                                                                           "Variable and hypervariable domains are found in the regions of HC corresponding to the flavivirus envelope and NS1 proteins and the pestivirus envelope glycoproteins."; Virology 180:842-848(1991).
                                                                                                                                                                                                                                                                                         MEDLINE-91112009; PubMed-1846505;
Welner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J.,
Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
         .;
o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 51; DB 1; Length 309; 100.0%; Pred. No. 0.02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF01560; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6E858E9C3D0B9EA9 CRC64;
        .
0
                                                                                                                                                               Last sequence update)
Last annotation update)
                                                                                                                      309 AA.
        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Transmembrane; Nonstructural protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
      ;
                                                                                                                                                01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequ
16-OCT-2001 (Rel. 40, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X53133; CAA37293.1; -.
InterPro; IPR002531; HCV_MS1.
InterPro; IPR002531; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               32922 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01542; HCV_core; 1. Pfam; PF01539; HCV_env; 1.
         Conservative
                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
255
>309
68
81
106
177
289
                                1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                              309 AA;
                                                                                                                                                                                                                                                     NCBI_TaxID=11109;
                                                                                                                                              01-AUG-1992
01-AUG-1992
                                                                                                                                                                                                                                         Hepacivirus.
      10;
                                                                                                                      POLG_HCVH7
P27955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                          POLG_HCVH7
        Matches
                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                 ò
                                                         g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSILEZ (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
"Variable and hypervariable domains are found in the regions of HCV corresponding to the flavivirus envelope and NS1 proteins and the pestivirus envelope glycoproteins."; Virology 180:842-848(1991).
                                                             -!-SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 51; DB 1; Length 321;
Pred. No. 0.021;
                                                                                                                                                                                                                                                                                                                                                                                EMBL; X53131; CAA37291.1; -.
InterPro; IPR002531; HCV_NSI.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01559; HCV_core; 1.
Probom; PD18606; HCV_NSI; 1.
Probom; PD186062; HCV_NSI; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2F5DE79F7C7845C8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            321 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nonstructural protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76
267
>321
80
93
118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          189
301
307
314
321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    321
321 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15 ADLMGYIPLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 4
POLG_HCVTH
ID POLG_HCVTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                рp
```

ò q 3

```
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
 ò
                                                                                                                                                                                                                                                                                                        between the Swiss Institute of Bioinformatics and the EMBL outstation-
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                         ø
                                                                                                                                                                                     "Variable and hypervariable domains are found in the regions of HCV corresponding to the flavivirus envelope and NS1 proteins and the pestivirus envelope glycoproteins.";

Virology 180:842-848(1991).

-!- SUBGNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                    Hepatitis C virus (isolate TH) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED (GLCNAC. ..) (POTENTIAL).
        01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-CCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Matrix protein (Envelope protein M);
Major envelope protein E: Nonstructural protein NSI] (Fragment).
Hepatitis C virus (isolate TH) (HCV).
                                                                                                                                       MEDLINE-91112009; PubMed-1846505; Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J., Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 51; DB 1; Length 321; 100.0%; Pred. No. 0.021;
                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002531; HCV_NS1.
InterPro; IPR002531; HCV_NS1.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_core.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01559; HCV_env; 1.
Probom; PF01560; HCV_NS1; 1.
Probom; P018606; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B2EB83F521C3B520 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PDLG_HCVJ2 STANDARD; PRT; 513 AA. P27959; 01-AUG-1992 (Rel. 23, Created) 01-AUG-1992 (Rel. 23, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transmembrane; Nonstructural protein.

NON_TER 1 1

CHAIN <1 75 MATRIX P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34074 MW;
                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X53134; CAA37294.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            75
267
>321
80
93
118
189
301
307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               321
321 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15 ADLMGYIPLV 24
                                                                                                        NCBI_TaxID=11117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               189
301
307
314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POLG_HCVJ2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DY PT
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
                                                                                                                                                                                                                                                                                                                                                                              VITOLOGY 188:331-341(1992).

-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION. NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                     Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProDom; Pulgovos, ....
Polyprotein; Gat protein; Euvesse.
Transmembrane; Nonstructural protein.
REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                               SEQUENCE FROM N.A.
MEDLINE=92230232; PubMed=1314459;
MEDLINE=92230232; PubMed=1314459;
MEDLINE=92230232; PubMed=1314459;
Tanaka T., Fukuda S., Tsuda S.I., Mishiro S.;
"Full-length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 51; DB 1; Length 513; 100.0%; Pred. No. 0.032;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                943F31E3514CDEF3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                  (GP68) (GP70) (NS1)] (Fragment).
Hepatitis C virus (isolate HC-J2) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; D10074; BAA00968.1; -...
InterPro; IPR002531; HCV_NS1.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01549; HCV_core; 1.
Pfam; PF01560; HCV_env; 1.
Pfam; PF01560; HCV_env; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55704 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115
191
383
>513
369
196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      423
430
448
513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 ADLMGYIPLV 10
                                                                                                                                                  NCBI_TaxID=11111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                                                              genotypes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

131 ADLMGYIPLV 140

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its muse by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licenseélsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAPSID PROTEIN (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NOSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
BY STMILARRIY.
N-LINKED (GLCNAC. . ) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-93019030; Pubmed-1383400;
ADE K., Inchauspe G., Fujisawa K.;
ADE K., Inchauspe G., Fujisawa K.;
ADE K., Inchauspe G., Fujisawa K.;
Genomic characterization and mutation rate of hepatitis C virus
isolated from a patient who contracted hepatitis during an epidemic
of non-A, non-B hepatitis in Japan.";
J. Gen. Virol. 73:2725-2739(1992).
-!- SUBGNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A
LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN M AND GIFCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF
PROTEIN C AND MRNA.
                                                                                                                                          01-JUL-1993 (Rel. 26, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope 91ycoprotein El (GP32) (GP35); Envelope 91ycoprotein E2
(GP68) (GP70) (NS1)] (Fragment).
                                                                                                                                                                                                                                                                                                                        Hepatitis C virus (isolate HCV-476) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R InterPro: IPR002531; HCV_NSI.
R InterPro: IPR002531; HCV_NSI.
R InterPro: IPR002521; HCV_capsid.
R InterPro: IPR002521; HCV_capsid.
R InterPro: IPR002519; HCV_can.
R Pfam: PF01543; HCV_capsid; 1.
R Pfam: PF01542; HCV_core; 1.
R Pfam: PF01560; HCV_NSI; 1.
R ProDom: PD186062; HCV_NSI; 1.
R ProDom: PD186062; HCV_NSI; 1.
R Prosprotein; Glycoprotein; Coat protein; Envelope protein; INIT_MET 1 1 1 REMOVED FROM CAPSID PROTEIN C BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 51; DB 1; Length 520; 100.0%; Pred. No. 0.033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA135246CF20D525 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                     520 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED (
N-LINKED (
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56499 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; D10688; BAA01530.1; -
                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  449
520
520 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=31643;
                                                                                                                                                                                                                                                                                                                                                                                             Hepacivirus
                                                                                 POLG_HCVH4
Q01404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
TRANSMEM
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                  KESULT 6
POLG_HCVH4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                 SHIRI HIRITITI IN THE SAME SHEET AND SHEET AND
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN ( POPENTIAL).
MARIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
                                                                                                                     01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
01-JUL-1993 (Rel. 26, Last sequence update)
Genome polyprotein (Ontains: Capsid protein C (Core protein) (P22);
Envelope 41ycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1) (Fragment).
Hepatitis C virus (isolate HCV-KF) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           **Morror Tribators (1. ) Abe K.; Tribhause (1. ) Tribators (1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR, JQ1925; JQ1925.

InterPro; IPR002531; HCV_capsid.

InterPro; IPR002521; HCV_capsid.

InterPro; IPR002519; HCV_cans.

IPR01561; HCV_cans.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MW; 1D2BD0A6FF27349B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                          520 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED (N-LINKED (N-LINK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. MEDLINE=93019030; PubMed=1383400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; D10687; BAA01529.1; -.
                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115
191
383
>520
369
209
233
234
305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         520
520 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=31644;
                                     POLG_HCVHK
Q01403;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
POLG_HCVHK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
```

0;

Gaps

.; 0

0; Indels

Mismatches

0;

Best Local Similarity 100. Matches 10; Conservative

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EWBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             **RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.

**X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.

**A Yan Y., Li Y., Muushi S., Sardana V., Cole J.L., Sardana M.,

**A Steinkuehler C., Tomei L., de Francesco R., Kuo L.C., Chen Z.;

**T. Complex of NS3 protease and NS4A peptide of BK strain hepatitis C.

**T. Truns: a 2.2-A resolution structure in a hexagonal crystal form.";

**Protein Sci. 7:837-847(1998).

**I. Protein Sci. 7:837-847(1998).

**I. PUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

**C. I. STALLYTY CATTUTY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pland Ser or Ala in Pl'.

**C. I. SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOAPSID COVERED BY A NUCLEOAPSID.
                                                                                                                                                                          01-406-1992 (Rel. 23, Created)
01-406-1992 (Rel. 23, Last sequence update)
16-0C7-2010 (Rel. 40, Last annotation update)
16-0C80 (GPOB) (NSI); Protein P7; Nonstructural protein R2 (P21)
16-0C 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
16-0C 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                   Takamizawa A., Mori C., Fuke I., Manabe S., Murakami S., Fujita J.,
Onishi E., Andoh T., Yoshida I., Okayama H.;
"Structure and organization of the hepatitis C virus genome isolated
                                                                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-97015088; Pubmed-8861916;
Love R.A., Parge H.E., Wickersham J.A., Hostomsky Z., Habuka N.,
Moomaw E.W., Adachi T., Hostomska Z.;
The crystal structure of hepatitis C virus NS3 proteinase reveals
trypsin-like fold and a structural zinc binding site.";
Cell 87:331-342(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-96235224; PubMed-8647104;
Borowski P., Heiland M., Oehlmann K., Becker B., Korneteky L.;
Non-structural protein 3 of hepatitis C virus inhibits
phosphorylation mediated by CAMP-dependent protein kinase.";
Eur. J. Biochem. 237:611-618(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS) OF 1027-1215.
               ;
 Pred. No. 0.033;
                                                                                                                                                  3010 AA
                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE=91140698; Pubmed=1847440;
               ö
100.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Virol. 65:1105-1113(1991).
                 10; Conservative
                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 1487-1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from human carriers.
                                                            131 ADLMGYIPLV 140
                                           1 ADLMGYIPLV 10
 Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=11105;
                                                                                                    RESULT POLG_HCVBK
ID POLG_HCVBK
POLG_HCVBK
TP6663;
AUG.199
                                                                                                                                                                                                                                                                                                                                                               Hepacivirus
                 Matches
                                                                       g
                                             ò
```

```
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
 commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELODE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Probon; PD186062; HCV_NSI; I. Polybrotein; Olycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Evalope protein; Helicase; ATF-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ( POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
                                                                                                                                                                                                                                         Interpro; IPR002166; HCV_RdRP.
Interpro; IPR002522; HCV_capsid.
Interpro; IPR002521; HCV_core.
Interpro; IPR002519; HCV_env.
Interpro; IPR0015519; HCV_env.
                                                                                                                                                             IPR002531; HCV_NS1.
IPR002518; HCV_NS2.
IPR004109; HCV_NS3.
IPR000745; HCV_NS4a.
IPR001499; HCV_NS4b.
                                                                                                                                                                                                                                                                                                                                                                                                             HCV_NS4b; 1.
HCV_NS5a; 1.
HCV_RdRP; 1.
helicase_C; 1.
                                                                                                                                                                                                                                                                                                            Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_env; 1.
                                                    EMBL; M58335; AAA72945.1; -.
                                                                                                                                                                                                                                                                                                                                                        HCV_NS1; 1.
HCV_NS2; 1.
HCV_NS3; 1.
HCV_NS4a; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    369
1083
1107
1165
1165
1237
1319
196
209
234
250
250
305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   423
4430
4448
532
540
556
576
                                                                         PDB: 1A10; 25-MAR-98.
PDB: 1JXP; 14-JAN-98.
PDB: 1NS3; 08-APR-98.
MEROPS; 529.001; -.
                                                                                                                                               InterPro; IPR001410;
InterPro; IPR002531;
InterPro; IPR002518;
                                                                 PIR; A38465; GNWVTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  196
209
234
250
305
417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 623
645
2041
2077
                                                                                                                                                                                                                                                                                                                                                        PF01560;
                                                                                                                                                                                                                                                                                                                                                                     PF01538;
                                                                                                                                                                                                                                                                                                                                                                                   PF02907;
                                                                                                                                                                                                                                                                                                                                                                                                PF01006;
                                                                                                                                                                                                                                                                                                                                                                                                              PF01001;
                                                                                                                                                                                                                                                                                                                                                                                                                           PF01506;
                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3D-structure.
                                                                                                                                                                                        InterPro;
InterPro;
                                                                                                                                                                                                                 InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                         Pfam;
                                                                                                                                                                                                                                                                                                                                                                      Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                    Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
```

IPR001410;

```
Pfam;
                                                                                                                                                                                                                                          Pfam;
Pfam;
                                                                                                                                                                                                                               Pfam;
      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                       01-40G-1992 (Rel. 23, Created)
01-40G-1992 (Rel. 23, Last sequence update)
01-40G-1992 (Rel. 23, Last sequence update)
16-GCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NSI); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA POLYMerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Japanese) (HCV).
Viruses; SSRNA Positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.
SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
 N-LINKED (GLCNAC. ..) (POTENTIAL).
N-LINKED (GLCNAC. ..) (POTENTIAL).
N-LINKED (GLCNAC. ..) (POTENTIAL).
             29 N-LINKED (GLCNAC. .) (POTENTIAL).
88 N-LINKED (GLCNAC. .) (POTENTIAL).
327189 MW; F8422D5ECCFDFD9C CRC64;
                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-91088550; PubMed-2175903; Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi S., Sugimura T., Shimotohno K.; "Molecular cloning of the human hepatitis C virus genome from Japanese patients with non-A, non-B hepatitis."; Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                       100.0%; Score 51; DB 1; Length 3010; 100.0%; Pred. No. 0.16;
                                                                                               0; Indels
                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; D90208; BAA14233.1; -.
                                                                                               Conservative
                                                                                                                                                                                                     STANDARD;
 2240
2529
2788
 2240 224
2529 252
2788 278
3010 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR; A39253; GNWVCJ.
HSSP; P26663; LJXP.
                                                                                                                                 131 ADLMGYIPLV 140
                                                                                  Similarity
                                                                                                                    1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEROPS; S29.001; -. MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=11116;
                                                                        Ma
Local S.
10;
                                                                                                                                                                                                                                                                                                                                                                     Hepacivirus
                                                                                                                                                                                                   POLG_HCVJA
P26662;
                                                                      Query Match
Best Local Si
Matches 10;
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                         POLG_HCVJA
 FT
FT
SO
                                                                                                                                         g
                                                                                                                                                                                                                 δ
```

```
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                POTENTIAL).
POTENTIAL).
                                                                                                                                                                                                                                     polymerase;
                                                                                                                                                                                                                                               ATP-binding;
                                                                                                                                                                                                                                                                                                                             POTENTIAL)
                                                                                                                                                                                                                                                       protease.
C BY THE
                                                                                                                                                                                                                                                                                                                    OTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                          TENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (PODENTIAL)
                                                                                                                                                                                                                                                                                                                                       TIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                            NTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NTIAL
                                                                                                                                                                                                                                 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (GLCNAC. ) (PO
W; AA993794F46DB185 CRC64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 51; DB 1; Length
Pred. No. 0.16;
                                                                                                                                                                                                                                                                                                                                                                                       (BY
(BY
(BY
                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
CHARGE RELAY SYSTEM (1
CHARGE RELAY SYSTEM (1
CHARGE RELAY SYSTEM (1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                   ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                               IPR002166; HCV_RdRP.
IPR002522; HCV_capsid.
IPR002521; HCV_core.
                                                                                 IPR002519; HCV_env. IPR001650; Helicase_C.
                                                                                                 Pfam; PF01543; HCV_capsid; 1.—
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_core; 1.
Pfam; PF01560; HCV_NS1; 1.
Pfam; PF01560; HCV_NS2; 1.
Pfam; PF02907; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
0
                             HCV_NS4b.
HCV_NS5a.
HCV_RdRP.
                                                                                                                                                             PF01006; HCV_NS4a; 1.
PF01001; HCV_NS4b; 1.
PF01056; HCV_NS4b; 1.
PF00998; HCV_RGRP; 1.
PF00271; helicase_C; 1.
m; PD186062; HCV_NS1; 1.
                     HCV_NS4a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .45
2041
7 2077
2240
2788
: 327017 M·
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
100.0%;
          HCV_NS3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                             IPR001490;
IPR002868;
                     IPR000745;
                                                                               IPR002519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 ADLMGYIPLV 10
                                                                                                                                                              PF01006; PF01001; P
                                                                                                                                                                                           Pfam; PF00998;
Pfam; PF00271;
InterPro;
InterPro;
InterPro;
InterPro;
InterPro;
InterPro;
InterPro;
                                                                     InterPro;
InterPro;
                                                                                           nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                          ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                               ProDom; SMART; S
                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                               FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
```

ó

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DDRKKNDDDRKKDDRKKDDDRKKDDDRKKDDDRKKDDDRKKDDDRKKDDDRKKDDDRKKDDDRKKDDDRKKDDDRKKDDRKKDDDRKKDDRKKDDRKKDDRKKDDRKKDDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Π
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                             01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 26, Last sequence update)
01-APR-1993 (Rel. 40, Last annotation update)
Genome polyprotein (Contains Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (N81); Protein P7: Nonstructural protein NS2 (P21)
(EC 3 4.22 -); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21-98); Nonstructural protein NSA (P4); Nonstructural protein
NSAB (P27); Nonstructural protein NSA (P45); Nonstructural protein
NSAB (P60) (P70) (RNA-directed RNA pollymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate HC-JT) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=92295714; PubMed=1318627;
Tanaka T., Kato N., Nakagawa M., Ootsuyama Y., Cho M.J.,
Nakazawa T., Hijikata M., Ishimura Y., Shimotohno K.;
"Molecular cloning of hepatitis C virus genome from a single Japanese
carrier: sequence variation within the same individual and among
infected individuals.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VILLUS RES. 23:39-53(1992).

-! FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBILE. SUGGESTING A POSSIBLE MEMBRANE-RELEATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

-! CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral position, Cys or Thr in Pl and Ser or Ala in Pl'.

-! SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOROPOFIN BAYELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C. AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                        PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR00141); DEAD.
InterPro; IPR002511; HCV_NS1.
InterPro; IPR002518; HCV_NS2.
InterPro; IPR000145; HCV_NS2.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001490; HCV_NS4.
InterPro; IPR002166; HCV_NS5.
InterPro; IPR002156; HCV_CAPS1.
InterPro; IPR002552; HCV_CAPS1.
InterPro; IPR002552; HCV_COPE.
InterPro; IPR002551; HCV_COPE.
InterPro; IPR002519; HCV_COPE.
InterPro; IPR002519; HCV_COPE.
InterPro; IPR002519; HCV_EAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; D11168; BAA01943.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_NS2; 1.
HCV_NS3; 1.
HCV_NS4a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HCV_env; 1.
HCV_NS1; 1.
                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR; A45573, A45573.
HSSP; P26663, LJXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=31642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PF01539; PF01560; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF01538; PF02907; PF01006; PF0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PF01542;
                                                                                                                                                                                                                                                                                                                                                                                                                           Hepacivirus.
                                                                                      POLG_HCVJT
Q00269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; |
Pfam; |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     etam;
                                                             POLG_HCVJT
                                         RESULT
```

```
POLYDICALE, SMO0492; HELICC3; 1.

W Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Glycoprotein; Envelope protein; Helicase; Arp-binding; Core protein; Glycoprotein; Envelope protein; Helicase; Arp-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

T INIT_MET 1 115 CREMULAR AMINOPERIDASE.

T CHAIN 116 191 MATRIX PROTEIN (POTENTIAL).

T CHAIN 192 383 MAJOR ENVELOPE PROTEIN B. POTENTIAL).

T CHAIN 384 729 NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).

T CHAIN 1007 1615 PROTEASE/HELICASE NS3 (POTENTIAL).

T CHAIN 1863 2013 NONSTRUCTURAL PROTEIN NS48 (POTENTIAL).

T CHAIN 1864 NONSTRUCTURAL PROTEIN NS48 (POTENTIAL).

T CHAIN 1865 NONSTRUCTURAL PROTEIN NS48 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 26, Last sequence update)
01-APR-1993 (Rel. 40, Last annotation update)
Genome polyprotein (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P70)
(EC 3.4.21.98); Nonstructural protein NS4 (P4); Nonstructural protein
NS48 (P77); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Taiwan) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL). (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 51; DB 1; Length 3010; 100.0%; Pred. No. 0.16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94A1C77435D642BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATP (POTENTIAL).
DECH BOX.
N-LINKED (GLCNAC.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
Pfam; PF01001; HCV_NS4b; 1.
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00999; HCV_RGRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               326573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POLG_HCVTW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                      CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P29846;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVTW
```

8

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mapping the 5' termini of viral genomic and antigenomic RNA."; Virology 188:102-113(1992).

-! FUNCTION: THE SMALL PROFEINS NSZA, NSZB, NSAA AND NSAB ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION: NS3 AND NSS MXY ELMY A ROLE IN THE VIRAL RNA REPLICATION.

-! CARALTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.

-SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLECCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLECCAPSID IS A COMPLEX OF PROTEIN C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
                                                                                Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.; "The Taiwanese hepatitis C virus genome: sequence determination and
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                              -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M84754; -; NOT_ANNOTATED_CDS.
PIR; A40244; GNWVTW.
                                                      SEQUENCE FROM N.A. MEDLINE-92230206; PubMed-1314449;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR002522; HCV_capsid. IPR002521; HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR002519; HCV_env.
InterPro; IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004109; HCV_NS3.
InterPro; IPR000745; HCV_NS4a.
InterPro; IPR001490; HCV_NS4b.
InterPro; IPR002868; HCV_NS5a.
InterPro; IPR002166; HCV_RGAP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HCV_NS1.
HCV_NS2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Core protein; Coat protein; E
Transmembrane; Nonstructural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProDom; PD186062; HCV_NS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                            HSSP; P26663; LJXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                           NCBI_TaxID=31645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
```

```
÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Choo O.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C.,
Choo O.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C.,
Choo O.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C.,
Calt D., Medina-Selby A., Barr P.J., Weiner A.J.,
Bradley D.W., Kuo G., Houghton M.;
T. Genetic organization and diversity of the hepatitis C virus.";
T. Greetic organization and diversity of the hepatitis C virus.";
T. F. C. Natl. Acad. Sci. U.S.A. 88:245:1991.
T. F. C. Natl. PROFINIS NS2A, NS2B, NS4A AND NS4B ARE
HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
C. I. FONDYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6
DOSILION, CYS OF THE IN PLANCE OR ALA in P17.
C. ISUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEGCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 40, Last amoutation update)
Genome polyprotein (Contains Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (N81); Protein P7: NonStructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS48 (P4); Nonstructural protein NS58 (P56); Nonstructural protein NS58 (P60) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate 1) (HCV)
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
              (BY SIMILARITY).
(BY SIMILARITY).
(BY SIMILARITY).
                                                                                                                                                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                            (POTENTIAL)
                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 51; DB 1; Length 3010; 100.0%; Pred. No. 0.16;
                                                                                                                                                                                                                                                                                                                                                                                 AAD267D55CDFE215 CRC64;
POTENTIAL.
CHARGE RELAY SYSTEM (
CHARGE RELAY SYSTEM (
CHARGE RELAY SYSTEM (
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                 (GLCNAC. .
                                                                                                                                                                                                                                                                               N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                 (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                (GLCNAC.
                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                       GLCNAC.
                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                           (GECNAC.
                                                                                                                                            (GLCNAC
                                                                                    GLCNAC
                                                         ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT; 3011 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                   N-LINKED (
                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                 327047 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                 623
645
2041
2077
                                                                                                                                                                                                                                                                                                                                          2240
2529
2788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=11104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POLG_HCV1
P26664;
             ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                CARBOHYD
                                                                                                                             CARBOHYD
                                                                                                                                            CARBOHYD
                                                                                                                                                            CARBOHYD
                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                    CARBOHYD
                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
  TRANSMEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
POLG_HCV1
 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

```
Prince A.M.;
                                                                                                                                                                                                                                                                                                                                                                                              Hepacivirus
                                                                                                                                                                                                                                            POLG_HCVH
P27958;
          CARBOHYD
 CARBOHYD
                    CARBOHYD
                               CARBOHYD
                                         CARBOHYD
                                                     CARBOHYD
                                                              CARBOHYD
                                                                        CARBOHYD
                                                                                   CARBOHYD
                                                                                             SEQUENCE
                                                                                                                                                                                                                       RESULT 13
POLG_HCVH
 qq
                                                                                                                                                                                                                                             ŏ
                                                 between the Swiss Institute of Bioinformatics and the EMBL outstation—the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                         Phis SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                            Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; APP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease: INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                   SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (GLCNAC...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DECH BOX
                                                                                                                                                                                                                    InterPro; IPR000745; HCV_NS4a.
InterPro; IPR001499; HCV_NS4b.
InterPro; IPR002166; HCV_NS5a.
InterPro; IPR002166; HCV_RdRP.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                    ### PP01543; HCV_capsid; 1-
Pfam; PP01566; HCV_NS1; 1-
Pfam; PP01006; HCV_NS3; 1-
Pfam; PP01006; HCV_NS3; 1-
Pfam; PP01001; HCV_NS4; 1-
Pfam; PP01001; HCV_NS5; 1-
Pfam; PP01506; HCV_NS5; 1-
Pfam; PP01506; HCV_NS5; 1-
Pfam; PP00271; helicase_C; 1-
Probom; PD186062; HCV_NS1; 1-
Probom; PD186062; HCV_NS1; 1-
Probom; PD186062; HEV_NS1; 1-
                                                                                                                                                                                      HCV_NS1.
HCV_NS2.
HCV_NS3.
                                                                                                                        EMBL; M62321; AAA45676.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1165
11237
1319
1319
209
234
305
417
423
448
448
476
532
540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1083
                                                                                                                                                                            InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                             IPR004109;
                                                                                                                                  PIR; A39166; GNWVC3.
HSSP; P27958; 1HEI.
                                                                                                                                             HSSP; P27958; 1HEI.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             347
1083
1107
1165
1230
1316
                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-AUG-1992 (Rel. 23, Last sequence update)
16-027-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Bnvelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GF70) (NS1): Protein P7: Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27): Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate H) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657.
MEDLINE-9733132; PubMed=9187654;
Yao N., Hesson T., Cable M., Hong Z., Kwong A.D., Le H.V., Weber P.C.;
"Structure of the hepatitis C virus RNA helicase domain.";
Nat. Struct. Biol. 4:463-467(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   oligonucleotide: the crystal structure provides insights into the mode of unwinding.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Structure 6:89'100(1998).

-!- FUNCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3-
-!- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF
NS3-NS4A, NS4A-NS4B, NS4B-NS5A AND NS5A-NS5B.
-!- FUNCTION: NS4A FORMS A COMPLEX WITH NS3 AND IS ESSENTIAL FOR THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTIVATION OF N33.
-!- FUNCTION: NS5A SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.
-!- FUNCTION: NS5B IS A RNA-DEPENDENT RNA POLYMERASE THAT PLAYS AN
-!- CATALYTIAL ROLE IN THE VIRONS REPLICATION.
-!- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral
precursor polyprotein, commonly with Asp or Glu in the P6
position, Cys or Thr in P1 and Ser or Ala in P1'.
                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-98154321; PubMed-9493270;
Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A.,
Murcko M.A., Lin C., Caron P.R.,
"Hepatitis C virus NS3 RNA helicase domain with a bound
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ပ
                                                                                                   (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Genomic structure of the human prototype strain H of hepatitis virus: comparison with American and Japanese isolates."; Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991).
                                                       (POTENTIAL)
                           (POTENTIAL)
                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE-92052256; PubMed-1658800;
Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasoff M.,
                                                                                                                                                                                                                                                                                                                  100.0%; Score 51; DB 1; Length 3011; 100.0%; Pred. No. 0.16; ive 0; Mismatches 0; Indels (
                                              (GLCNAC...)
(GLCNAC...)
(GLCNAC...)
(GLCNAC...)
                                                                                                                                                                                           (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657.
                                                                                                                                                                                                                                          65F8C9447FCE5AF9
                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT; 3011 AA
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-AUG-1992 (Rel. 23, Created)
                                                                                                                                                                                                                                                                                                                  Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                 623
2041
2077
2240
2364
2789
                                                                                                                                                                                                                                          AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                              1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=11108;
  556
576
623
645
2041
2240
2364
3011
```

```
POLG_HCVJ5
                                                                                                                                                                                                                         qq
    ŏ
                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its muse by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ore protein; Coat protein; Envelope protein; Helicase; ATP-binding;
Fransmembrane; Nonstructural protein; Hydrolase; Serine protease;
SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: E1 AND E2. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA. PTM: THE STRUCTURAL PROTEINS C, E1 AND E2 ARE PRODUCED BY PROTEOLYTIC PROCESSING BY THE HOST SIGNAL PEPTIDASES. SIMILARITY: THE NS2 PROTEASE BELONGS TO PEPTIDASE FAMILY C18. SIMILARITY: THE NS3 PROTEASE BELONGS TO PEPTIDASE FAMILY C18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATP (POTENTIAL).
DECH BOX.
N-LINKED (GLCNAC. . ) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REMOVED FROM CAPSID PROTEIN C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NONSTRUCTURAL PROTEIN NS4A.
NONSTRUCTURAL PROTEIN NS4B.
NONSTRUCTURAL PROTEIN NS5A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NS5B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NONSTRUCTURAL PROTEIN NS2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENVELOPE GLYCOPROTEIN E1. ENVELOPE GLYCOPROTEIN E2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (BY
(BY
(BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NONSTRUCTURAL PROTEIN POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROTEASE/HELICASE NS3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAPSID PROTEIN C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROTEIN P7
                                                                                                                                                                                                                                                    InterPro; IPR002531; HCV_NS1.
InterPro; IPR002518; HCV_NS2.
InterPro; IPR0001409; HCV_NS3.
InterPro; IPR001440; HCV_NS4a.
InterPro; IPR001480; HCV_NS4b.
InterPro; IPR0012868; HCV_NS5a.
InterPro; IPR0022851; HCV_Capsid.
InterPro; IPR002522; HCV_Capsid.
InterPro; IPR002521; HCV_Core.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core.
InterPro; IPR001550; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01543; HCV_env; 1.
Pfam; PF01556; HCV_NS1; 1.
Pfam; PF01538; HCV_NS2; 1.
Pfam; PF02907; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF01001; HCV_NG4b; 1.
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00298; HCV_RGRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
SMART; SM00492; HELICG3; 1.
                                                                                                                                                                            EMBL; M67463; AAA45534.1; -.
                                                                                                                                                                                                                                             InterPro; IPR001410; DEAD.
InterPro; IPR002531; HCV_N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PDB; 1HEI; 25-NOV-98.
PDB; 1A1V; 16-FEB-99.
                                                                                                                                                                                       PIR; A36814; GNWVCH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Core protein; Coat
                                                                                                                                                                                                                      MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01539; H
Pfam; PF01560; H
Pfam; PF01538; H
Pfam; PF02907; H
Pfam; PF01006; H
Pfam; PF01001; H
Pfam; PF01001; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1973 2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                347
1083
11107
11165
1230
1316
196
209
234
305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3D-structure.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
CHAIN
TRANSMEM
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 24). Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein); Matrix
protein (Envelope protein M); Major envelope protein E; Nonstructural
proteins NSI and NS2] (Fragment).
Hepatitis C virus (isolate HG-J5) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VITOLOGY 188:331-341(1992).

-!- FUNCTION: THE SMALL PROTEINS NSZA, NSZB, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPMOFTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN MAND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MANA.
                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.

MEDLINE-22320323: PubMed=1314459;
Okamoto H., Kurai K., Okada S.I., Yamamoto K., Lizuka H.,
Tanaka T., Fukuda S., Tsuda F., Mishiro S.;
Fill.length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct genotypes."
                                              (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                  ..) (POTENTIAL).
..) (POTENTIAL).
..) (POTENTIAL).
                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                  ·
0
                                                                                                                                                                                                                                                                                                                                           100.0%; Score 51; DB 1; Length 3011; 100.0%; Pred. No. 0.16; 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro: IPR002531; HCV_NS1.
InterPro: IPR002521; HCV_capsid.
InterPro: IPR002521; HCV_capsid.
InterPro: IPR002519; HCV_capsid.
InterPro: IPR002519; HCV_capsid.
InterPro: IPR002519; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01542; HCV_capsid; 1.
Pfam; PF01560; HCV_capsid; 1.
Probom; PD18606; HCV_NS1; 1.
Probom; PD18606; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                       772CBB29CCD94753 CRC64;
                                                 (GLCNAC...) (GLCNAC...) (GLCNAC...) (GLCNAC...) (GLCNAC...) (GLCNAC...)
                                                                                                                                                                               (GLCNAC. . .)
                                                                                                                                                         (GLCNAC. . .)
                              GLCNAC
                                                                                                                                                                                                                                   (GLCNAC
GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      737 AA.
N-LINKED
                                                                                                                                                                                                                                                                       327142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; D10075; BAA00969.1;
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                         645
                                                                                                                                                                                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=11112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POLG_HCVJ5
P27960:
CARBOHYD
CARBOHYD
                                                                          CARBOHYD
CARBOHYD
                                                    CARBOHYD
                                                                                                                                CARBOHYD
                                                                                                                                                            CARBOHYD
                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                       SEQUENCE
```

```
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                CHAIN
     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                              ö
                        CELLULAR ANINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSILEZ (POTENTIAL).
NONSTRUCTURAL PROTEIN NSILEZ (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
6enome polyprotein (Contains: Capsid protein C (Core protein); Matrix protein (Envelope protein M); Major envelope protein E; Nonstructural proteins NSI and NS2] (Fragment).
Hepatitis C virus (isolate HC-J7) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRARE.FELSATED FUNCTION. NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION. SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-92230232; PubMed-1314459; Okada S.I., Yamamoto K., Lizuka H., Okada S.I., Yamamoto K., Lizuka H., Tanaka T., Fukuda S., Tsuda F., Mishiro S., "Full-length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct
               REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                         (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                     94.1%; Score 48; DB 1; Length 737;
90.0%; Pred. No. 0.17;
ive 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                3AF699D82AD501B1 CRC64;
                                                                                                                ???
                                                                                                           N-LINKED (GLCNAC...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         737 AA
                                                                                                  POTENTIAL.
     protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                  MM
Transmembrane; Nonstructural INIT_MET 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Virology 188:331-341(1992).
                                                                                                                                                                                                                                                                                                                  81207
                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                    131 ADLMGYIPVV 140
                                                                                                                                                                                                                                                                                                                                                                                                      1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=11114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POLG_HCVJ7
ID POLG_HCVJ7
AC P27961;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                             <u>ئ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genotypes.
                                                                                                                                                                                     CARBOHYD
CARBOHYD
                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                 TRANSMEM
CARBOHYD
                                                                                                                                                                                                                                                                                                   NON_TER
SEQUENCE
                                                                                                                           CARBOHYD
                                                                                                                                     CARBOHYD
                                                                                                                                                   CARBOHYD
                                                                                                                                                              CARBOHYD
                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                      Query Match
                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                 Best Loca
Matches
   qq
```

```
ö
entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CELLULAR ANINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                   InterPro; IPR002531; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core; 1.
Pfam; PF01549; HCV_core; 1.
Pfam; PF01540; HCV_core; 1.
ProDom; PD186062; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
Probom; PD186062; HCV_LOSI; 1.
INTERPROPERTOR CAPSID PROTEIN; ENVELOPE INTERPROPERTOR OF THE INTERPROPERTOR OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..) (POTENTIAL).
..) (POTENTIAL).
..) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1; Length 737;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67DFAE11854122F2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
(GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: August 23, 2002, 09:55:17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -LINKED
-LINKED
-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94.1%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81691
                                                                                               EMBL; D10077; BAA00971.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         649
737
737 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               131 ADLMGYIPVV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Job time: 47 sec
```

```
hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                               hepatitis of hepat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus type 1b.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPUCINCE FROM .....
SPUCINCE FROM .....
SPECINCE FROM .....
STRAIN=IND 054;
MEDLINE-96432288; PubMed=8835354;
MEDLINE-96432288; PubMed=8835354;
Panigrahi A.K., Roca J., Acharya S.K., Jameel S., Panda S.K.;
Rendition of a new subtype...;
Identification of a new subtype...;
J. Med. Virol. 48:191-198(1996).
EMBL; X91297; CAA62671.1;
InterPro: IPR002522; HCV.capsid.
InterPro: IPR002522; HCV.capsid.
InterPro: IPR002522; HCV.capsid.
Ffam: PF01542; HCV.core.
Pfam: PF01542; HCV.core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                             Q68129
Q68131
Q68131
Q68133
Q68133
Q68135
Q68135
Q68135
                 068106
0681108
0681110
0681111
0681111
0681116
0681116
068112
068122
068123
068123
068123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150 150
150 AA; 16678 MW; 251AC56249B26432 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
CAPSID PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 51; DB 12;
1101.1ty 100.0%; Pred. No. 0.024;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALIGNMENTS
                                                                                                                                                                                                                                                                                                            068129
068130
068131
068132
068133
                                                                              068113
068114
068116
068116
068119
068120
068121
068123
068123
                                                                                                                                                                                                                                                                                                                                                                                                             Q68135
Q68136
Q68137
Q68138
 PRELIMINARY;
Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128 ADLMGXIPLV 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
NCBI_TaxID=31647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON_TER
NON_TER
SEQUENCE
 HCV CORE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q68843
Q68843;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
068843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q68843 hepatitis c
Q6881 hepatitis c
Q6891 hepatitis c
Q68904 hepatitis c
Q81276 hepatitis c
Q91275 hepatitis c
Q01729 hepatitis c
Q01739 hepatitis c
                                                                                                                             (without alignments)
12.372 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hepatitis on hepat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                            August 23, 2002, 09:57:00; Search time 139.83 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q81244
Q9pxe6
P90247
             GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                          562222 seqs, 172994929 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                              summaries
                                                                              - protein search, using sw model
                                                                                                                                                                                                                                            BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QGB841
QB8961
PB9094
QB1276
Q9E8Y1
Q81275
Q03729
O09739
Q81295
Q81295
Q81244
Q9PXE6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_archea:*
sp_bacteria:*
sp_fungi:*
sp_human:*
sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_vertebrate:*
sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_rvirus:*
sp_bacteriap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_mammal:*
sp_mhc:*
sp_organelle:*
                                                                                                                                                                                                                                                                                                                                                          seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_plant:*
sp_rodent:*
sp_virus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-854-825-1
51
                                                                                                                                                                                                            1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPTREMBL_19:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
Match I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10:
111:
112:
114:
115:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              51
51
51
51
51
51
51
                                                                                                                                                                                            Perfect score:
                                                                                                                                                                                                                                              Scoring table:
                                                                              OM protein
                                                                                                                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database
                                                                                                             Run on:
```

ö

Result

Gaps

ö

~

RESULT Q68867

```
RN [1]
RN [2]
RX SEQUENCE FROM N.A.
RX MEDLINE-96422679; PubMed-8825296;
RA Hitomi Y., McDonnell W.M., Baker J.R. Jr., Askari F.K.;
RA Hitomi Y., McDonnell W.M., Baker J.R. Jr., Askari F.K.;
RT "High efficiency prokaryotic expression and purification of a portion RT of the hepatitis C core protein and analysis of the immune response to recombinant protein in BALB/C mice.";
RL Viral Immunol. 8:109-119(1995).
DR EMBL; S81169; AAB46894.2; -..
DR InterPro; IPR002522; HCV_cores.
DR InterPro; IPR002521; HCV_core.
DR Pfam; PF01543; HCV_core:
DR Pfam; PF01542; HCV_core:
1. ...
NN TER 163 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
01-JUN-2001 (TREGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
NCBL_TAXID-11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE=95270681; PubMed=7751366; Reucht H.H., Zoellner B., Polywka S., Laufs R.; Study on reliabliliy of commercially available hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 51; DB 12; Length 151; 100.0%; Pred. No. 0.024; ive 0; Mismatches 0; Indels (
Pred. No. 0.024;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     151 151 151 151 151 151 AA; 0DBB1148B3581D6D CRC64;
                                                                                                                                                                                                                                                                                                                                     01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
CORE PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                       151 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT; 163 AA
                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antibody tests.";
J. Clin. Microbiol. 33:620-624(1995).
EMBL; X78951; CAA55548.1;
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
Pfam; PF01543; HCV_core; 1.
                100.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                              10; Conservative
                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                               128 ADLMGYIPLV 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 10; Conserv
                                                                                                    1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P89094
P89094;
                                                                                                                                                                                                                                                                                                                068961;
                                                                                                                                                                                                                                                                                     068961
                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
                                                                                                                                                                                                                                    RESULT
Q68961
                                                                                                    ò
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PERFORMED IN SEQUENCE FROM N.A.

PERFORMED IN SEQUENCE FROM N.A.

C. STRAIN-IND 1158;

CX. MEDLINE-96432288; Pubmed-8835354;

RADINE-96432288; Pubmed-8835354;

RADINE-96432288; Pubmed-8835354;

RECOLUME-96432288; Panda S.K.;

R. Genotype determination of hepatitis C virus from Northern India:

R. Genotype determination of hepatitis C virus from Northern India:

R. Genotype determination of hepatitis C virus from Northern India:

R. Genotype determination of a new subtype.";

R. J. Med. Virol. 48:191-198(1996).

DR. Med. Virol. 48:191-198(1996).

DR. InterPro; IPR002521; HCV_core

DR. InterPro; IPR002521; HCV_core

DR. Pfam; PF01543; HCV_core;

DR. Pfam; PF01542; HCV_core;

DR. Pf01542;

DR. Pf0154254;

DR. Pf0154254;

DR. Pf0154254;

DR. Pf0154254;

DR. Pf0154254;

DR. Pf0154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                    HEPACITIES C VITUS TYPE 3. VITUSES, NO DNA STAGE; Flaviviridae; Hepacivirus. NCBI_TaxID=40363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus type 1b.
Viruses: ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Panigrahi A.K., Roca J., Acharya S.K., Jameel S., Panda S.K.;
"Genotype determination of hepatitis C virus from Northern India :
Identification of a new subtype.";
J. Med. Virol. 48.191.198(1996).
EMBL; x91300; CAA62674.1;
InterPro: PRR002521; HCV_capsid.
InterPro: IPR002521; HCV_core.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match

100.0%; Score 51; DB 12; Length 150;
Best Local Similarity 100.0%; Pred. No. 0.024;
Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   150 AA; 16509 MW; DE75E728FF39B2B3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150 150 150 150 150 AW; 71E3A2B5C196994E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              068841 PRELIMINARY; PRT; 150 AA. 068841; 01. NOV-1996 (TrEMBLrel. 01, Created) 01-NOV-1996 (TrEMBLrel. 01, Last sequence update) 01-DEC-2001 (TrEMBLrel. 19, Last annotation update) CAPSID PROTEIN (FRAGMENT).
                                                                                                                                               01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
CAPSID PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 51; DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN-IND 674;
MEDLINE-96432288; Pubmed-8835354;
                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 128 ADLMGYIPLV 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID-31647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                               068867
```

RESULT Q68841

ò

ó

Gaps

;

```
1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
NON_TER
SEQUENCE
  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                     Q81275
Q81275;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q03729
Q03729;
                                                                                                                                   RESULT 8
Q81275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      003729
   SOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Оb
                                                                                   ŏ
                                                                                                                                                                   δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
0
                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ODERY1;
01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                   Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                 "Effective production of the hepatitis C virus core antigen having high purity in Eschericia coli.";
high purity in Eschericia coli.";
EMBL; D30614; BAA06504; -.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE-99186115; PubMed=7765873;
Seki M., Honda Y., Kondo J., Fukuda K., Ohta K., Sugimoto J.,
Yamada E.,
                             100.0%; Score 51; DB 12; Length 163; 100.0%; Pred. No. 0.026; 1ve 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 51; DB 12; Length 170; 100.0%; Pred. No. 0.027; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Jhan J. Arakalle V.A.;
"Phylogenetic Analysis of Indian HCV Isolates.";
Submitted (MAR-1999) to the EMBL/GenBank/DDBJ databases.
EMBL, AF134734; AAG09115.1; -.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
Pfam; PF01543; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                    NON_TER 170 170
SEQUENCE 170 AA; 18622 MW; 7EA0168530E6BBEF CRC64;
163 AA; 17917 MW; D74420694E11A8E4 CRC64;
                                                                                                                                                                         01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
                                                                                                                                               PRT; 170 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT; 173 AA.
                                                                                                                                          081276 PRELIMINARY; PRT; 081276; 01-NOV-1996 (TrEMBLrel. 01, Created)
                              Ouery Match 100.0
Best Local Similarity 100.0
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                               CORE PROTEIN (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                   131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                      NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-NIV-1;
                                                                                                                                                                                                                             Hepacivirus
 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09E8Y1
                                                                                                                         RESULT
Q81276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
Q9E8Y1
 So
                                                                        δ
                                                                                           a
                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
```

```
ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Characterization of nucleotide sequences form european hepatitis C virus isolates.";
Gene 103:163-169(1991).
Gene 103:163-169(1991).
InterPro: IPR002522; HCV_capsid.
InterPro: IPR002513; HCV_capsid.
Pfam; PF01543; HCV_capsid.
Pfam; PF01542; HCV_capsid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-91365241; PubMed-1653756; MEDLINE-91365241; PubMed-1653756; MEDLINE-91365241; PubMed-1653756; Morz M., Schreier E., Zachoval R., Deinhardt F., Roggendorf M., "Characterization of nucleotide sequences from European hepatitis C virus isolates."; pd. 1691-1691199; Med. 103:163-16911991.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                            .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 51; DB 12; Length 178; 100.0%; Pred. No. 0.028; Live 0; Mismatches 0; Indels
                                                                                                        Length 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
BEDLINE-91365241; PubMed-1653756;
Fuchs K., Motz M., Schreier E., Zachoval R., Deinhardt F.,
Roggendorf M.;
173 AA; 18979 MW; CIF650CDFE4968C2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  178 AA; 19463 MW; 4ABDCD20895FC87F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
CORE PROTEIN (FREMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
CORE PROTEIN (FRAGMENT).
Hepatitis C virus.
                                                                                                     Query Match 100.0%; Score 51; DB 12; 1
Best Local Similarity 100.0%; Pred. No. 0.028;
Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                 178 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
```

ó

```
NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      068873;
                                                                                                                                                                                                                                       081295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          068873
                                                                                                                                                                                                                 RESULT 12
Q81295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
Q68873
    δλ
                                                                                                                                                                                                                                                   ŏ
                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
                                                                                                                                                                                                                                                                                                                                                                                 "Genotype or, "Sequences in hematopoietic cells.";
Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
EMBL: U9472; AAR51537.1; --
InterPro: IPR00252; HCV_capsid.
InterPro: IPR00252; HCV_core.
Pfam: PF01543; HCV_core.
Pfam: PF01542; HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
Lerat H., Rumin S., Habersetzer F., Berby F., Trabaud M.-A., Trepo C.,
Inchauspe G.;
"Genotype influences the in-vitro tropism of Hepatitis C virus genomic
sequences in hematopoietic cells.";
                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
Lerat H., Rumin S., Habersetzer F., Berby F., Trabaud M.-A., Trepo C.,
Inchauspe G.;
                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUL-1997 (TrEMBLrel. 04, Created)
01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
01-JUL-1997 (TrEMBLrel. 10, Last annotation update)
NUCLECCAPSID PROTEIN (FRAGMENT).
Hepatitis C virus
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                             Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
NCBL_TaxID=11103;
                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                   100.0%; Score 51; DB 12; Length 178; 100.0%; Pred. No. 0.028; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 51; DB 12; Length 186; 100.0%; Pred. No. 0.03; ive 0; Mismatches 0; Indels
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002521; HCV_core.
Pfam; PF01542; HCV_capsid; 1.
Core protein; Polyprotein.
INON_TER 1 SEQUENCE 178 AA; 19483 MW; 93718C60895ADC69 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186 AA; 20455 MW; 85EABEB33E71B372 CRC64;
                                                                                                                                                                                                                                   009738;
01-JUL-1997 (TrEMBLrel. 04, Created)
01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NUCLEOCAPSID PROTEIN (FRAGMENT).
                                                                                                                                                                                                                            186 AA
                                                                                                                                                                                                                            PRT;
                                                                                           Query Match
Best Local Similarity 100.0
.....hes 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131 ADLMGYIPLV 140
                                                                                                                                                           125 ADLMGYIPLV 134
                                                                                                                                               1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         009739;
                                                                                                                                                                                                                           009738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              009739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 11
009739
                                                                                                                                                                                                     RESULT 10
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                      õ
```

```
Stuyver L., Fretz C., Jeannel D.; Hepatitis C virus infection in a rural population in Central African Republic."; Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       081295;
01-NOV-1996 (TrEMBLrel. 01, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
CORE PROTEIN/E1 PROTEIN (FRAGMENT).
Hepatitis C virus type 4.
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE=94180929; PubMed=8133850;
Vassilev V.B., Viazov S.O., Kotova E.Y., Nosikov V.V.;
Vassilev V.B., Viazov S.O., Rotova E.Y., Nosikov V.V.;
Determination of the nucleotide sequence of the Russian variant of
the hepatitis C virus.',
Mol. Gen. Mikrobiol. Virusol. 1:33-37(1994).
EMBL; X71407; CAA50531.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                           Query Match
100.0%; Score 51; DB 12; Length 186;
Best Local Similarity 100.0%; Pred. No. 0.03;
Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 100.0%; Score 51; DB 12; Length 189;
Best Local Similarity 100.0%; Pred. No. 0.03;
Matches 10; Conservative 0; Mismatches 0; Indels
Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases. EMBL; U94723; AAB51538.1; -.
InterPro; IPR002522; HCV_corpsid.
InterPro; IPR002521; HCV_corpsid.
Pfam; PF01543; HCV_corpsid; 1.
Pfam; PF01543; HCV_corpsid; 1.
Pfam; PF01542; HCV_corpsid; 1.
NOW TER 186 A8, 20214 MW; E73DF6878E18CBB5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            189 189 AA; 19920 MW; 7CEC828F6A09C398 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    189 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           190 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-DEC-2001 (TrEMBLRel. 19, CORE PROTEIN (FRAGMBNT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; L36439; AAA45537
                                                                                                                                                                                                                                                                                                                                                                                                                          131 ADLMGYIPLV 140
                                                                                                                                                                                                                                                                                                                                                                                          1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. STRAIN=CAR4/1205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5 ADLMGYIPLV 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus.
NCBI_TaxID=33745;
```

ó

```
ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ó
                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stuyver L., van Arnhem W., Wyseur A., Hernandez F., Delaporte E., Maertens G.;
Maertens G.;
Classification of hepatitis C viruses based on phylogenetic analysis of the envelope 1 and nonstructural 5B regions and identification of five additional subtypes.";
Proc. Natl. Acad. Sci. U.S.A. 91:10134-10138(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
MEDLINE=96029410; PubMed=7557851;
Iwata K., Wakita T., Okumura A., Yoshioka K., Takayanagi M.,
Wands J.R., Kakumu S.;
"Interferon gamma production by peripheral blood lymphocytes to
                                                                                                                                                                                                                                                                                                                             .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                             Query Match

100.0%; Score 51; DB 12; Length 190;
Best Local Similarity 100.0%; Pred. No. 0.03;
Matches 10; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.0%; Score 51; DB 12; Length 190; Best Local Similarity 100.0%; Pred. No. 0.03; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                       NON_TER 1 1 1
NON_TER 190 190
SEQUENCE 190 AA; 20737 MW; E34D2A3AAE167C87 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           190 AA; 19776 MW; 2BE966837CAB33D5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1996 (TrEMBLrel. 01, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
(BE95) CORE PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
PUTATIVE CORE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               191 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              190 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=95023999; PubMed=7524083;
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                   1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ADLMGYIPLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9PXE6
Q9PXE6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
081244
AC 081244,
DT 01-DEC.
DT 01-DEC.
DT 01-DEC.
DY NINGER 11
RP SEQUENT RX STURY ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
RT hepatitis C virus core protein in chronic hepatitis C infection.";

RL Hepatology 22:1057:1064(1995).

DR InterPro; IPR00252; HCV_capsid.

DR Pfam; PF01542; HCV_capsid; 1.

DR Pfam; PF01542; HCV_core; 1.

SQ SEQUENCE 191 AA; 20835 MW; 93CA960134EB8A51 CRC64;

Query Match

Best Local Similarity 100.0%; Score 51; DB 12; Length 191;

Matches 10; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 ADLMGYIPLV 10

Qy 1 ADLMGYIPLV 10

Db 131 ADLMGYIPLV 140

Search completed: August 23, 2002, 10:21:58

Job time: 1498 sec
```

```
Cytotoxic T-cell e
HPV16 E7 peptide (
HLA Class I motif
T cell epitope/MHC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide fragment (
Antigen fragment 2
HCV core 178-187 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis C virus
Hepatitis C virus
Hepatitis C virus
Hepatitis C virus
                                                                                                                        (without alignments)
6.180 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1982.DAT:*
/SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1983.DAT:*
/SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1983.DAT:*
/SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1986.DAT:*
/SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1986.DAT:*
/SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1986.DAT:*
/SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1988.DAT:*
/SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1989.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS1/gcgdata/hold-geneseg/genesegp-emb1/AA1990.DAT:*/SIDS1/gcgdata/hold-geneseg/genesegp-emb1/AA1991.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1992.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1993.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1994.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1994.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1995.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1995.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1997.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1997.DAT:*/SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1997.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT
/SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA2000.DAT
/SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA2001.DAT
                                                                                                      August 23, 2002, 10:00:57; Search time 179.72 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /SIDS1/gcgdata/hold-geneseq/geneseqp-emb1/AA2000.
/SIDS1/gcgdata/hold-geneseq/geneseqp-emb1/AA2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /SIDS1/gcgdata/hold-geneseg/genesegp-embl/AA1980.
/SIDS1/gcgdata/hold-geneseg/genesegp-embl/AA1981.
                                                                                                                                                                                                                                                                                                                                  747574
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                 747574 seqs, 111073796 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAK84571
AAW39559
AAY10482
AAY10220
AAJ03042
                                                                   protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR73105
AAR78942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR61498
                                                                                                                                                                                                                                              BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A_Geneseq_032802:*
                                                                                                                                                                                                                                                                                                                                                                     length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
222
222
223
223
223
223
                                                                                                                                                                          US-08-854-825-2
                                                                                                                                                                                                           1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      %
Query
Match 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15:
17:
18:
20:
                                                                                                                                                                                                                                                                                                                                                                       sed
                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                     Minimum DB
Maximum DB
                                                                   OM protein
                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
3
4
4
7
7
10
11
11
                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   š
```

15 22 AAJ03362 20 16 ARR64501 35 21 AAR03394 49 17 ARR65527 49 17 ARR65541 49 17 AAR86540 49 17 AAR86541 49 17 AAR86541 49 17 AAR86541 49 17 AAR86541 66 20 AAW72020 66 20 AAW72020 66 20 AAW72020 66 20 AAW72039 91 15 AAR63333 91 15 AAR63333 91 17 AAR62940 91 17 AAR62940 91 17 AAR62940 91 17 AAR62941 91 17 AAR62976 91 17 AAR62976 91 17 AAR62976 91 17 AAR62978 91 17 AAR62976 91 17 AAR62976 91 17 AAR62976 91 17 AAR62978 91 17 AAR62976 91 17 AAR62977 91 17 AAR62977 91 17 AAR62978 91 17 AAR62978 91 17 AAR62978 91 17 AAR62978 91 17 AAR62978	is control of the con	Hepatitis C virus
	AAJ03362 AAJ03394 AAR818511 AAR818534 AAR96527 AAR96537 AAR96541 AAR96641 AAR96641 AAR96641 AAR96641 AAR96633 AAR63333 AAR63333 AAR63333 AAR63333 AAR63333 AAR63333	AAK92240 AAK92240 AAK92241 AAK922951 AAK922976 AAK922976 AAK922976 AAK922977 AAK9241125 AAK944111 AAK82999
		7777777777777
000000000000000000000000000000000000000		
	11111111111111111111111111111111111111	. 4 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9

ALIGNMENTS

HIV1; plasma specific antigen; hepatitis B virus; Epstein Barr; human immunodeficiency virus; human papilloma virus; p53; c-ERB2; MAGE-1; melanoma antigen-1; core antigen; surface antigen; pharmaceutical composition; in vivo; ex vivo; therapeutic; diagnostic; MHC class I molecule; major histocompatability complex; HLA-A2.1; 9mer; 10mer; anchor; human leukocyte antigen. epitope; immunogenic target protein; PSA; HBVc; HBVs; EBV; Peptide fragment (1.0884) of HCV binds HLA-A2.1. Š AAR61498 standard; peptide; 10 (first entry) 11-MAY-1995 AAR61498; antigen; **AAR61498** RESULT

Hepatitis C virus.

WO9420127-A. 15-SEP-1994.

93US-0027146. 93US-0073205. 93US-0159184. 94WO-US02353. 05-MAR-1993; 04-JUN-1993; 29-NOV-1993; 04-MAR-1994;

(CYTE-) CYTEL CORP.

Sidney J; Grey HM, Kast WM, Sette A,

AAJ03056 AAJ03088 AAJ03348

a

ö

Gaps

Sequence

Query Match

õ 염

us-08-854-825-2.rag

```
AAR73058-121 are potential peptide binders of HLA-A2.1 motif. Using motifs disclosed in the invention, these peptides were screened for further motifs. Only peptides with binding affinity of at least 1% (binding affinity is expressed as an ICSO value) as compared to the standard peptide (AAR71293) in assays. This peptide from hepatitis c virus has an binding value of 0.6100. The peptides of the invention can induce cytotoxic T lymphocytes which can react with target cells. They can be used for the treatment or prophlyaxis of cancer, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A compsn. which induces a cytotoxic T lymphocyte (CTL) response to a hepatitis C virus (HCV) antigen (Ag) in a mammal comprises, a HCV CTL Ag response inducing peptide (i.e. AAR78941-R78955) and a lipid conjugated helper T cell inducing peptide. The compsn. is useful in the treatment and prevention of hepatitis C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Compsn. inducing cytotoxic T lymphocyte response to pref. viral, bacterial, parasitic or tumour antigens - useful in the treatment and prevention of diseases associated with the antigen e.g. hepatitis B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HCV core 178-187; cytotoxic T; CTL; epitope; helper T; HTL; cell; lymphocyte; antigens; treatment; disease prevention; hepatitis C; non-A; non-B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 46; DB 15; Length 10; 100.0%; Pred. No. 0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 46; DB 16; Length 10; 100.0%; Pred. No. 0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ·
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCV core 178-187 cytotoxic T lymphocyte epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vitiello MA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 12; Page 70; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR78942 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                       prostate cancer or lymphoma, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Grey H, Sette AD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95WO-US02121.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94US-0197484.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best_Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1995-302545/39.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CYTE-) CYTEL CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                           10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 LLALLSCLTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W09522317-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-FEB-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24-AUG-1995
                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ceut RW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR78942;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR78942
          8888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME OF THE PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                AARS9496-R61666 are immunogenic 10mer peptides that contain a HLA-A2.1 binding motif. These peptides bind HLA-A2.1 and have a binding affinity of at least 1% as compared to a reference peptide (AAR71293). AAR61498 has an ICSO of 0.61 and the sequence occurs at position 178 in the HCV CORE protein. The peptides of the invention can induce cytotoxic T lymphocytes which can react with target cells. They can be used for the treamment or prophlyaxis of cancer, eg. prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 antigen; epitope; immunogenic target protein; PSA; HBVC; HBVS; EBV; HIVI; plasma specific antigen; hepatitis B virus; Epstein Barr; human immunodeficiency virus; human papilloma virus; pS3; c-ERB2; MAGE-1; melanoma antigen-1; core antigen; surface antigen; pharmaceutical composition; in vivo; ex vivo; therapeutic; diagnostic; MHC class I molecule; major histocompatability complex; HIA-A2.1; 9mer; 10mer; anchor; human leukocyte antigen; PLP; 8mer; andorithm prediction; MBP; CMV; cytomegalovirus; HSV; herpes simplex virus; influenza A; M1.
                                                                   Immunogenic peptide(s) having an HLA-A2.1 binding motif - used for treatment or prophylaxis of cancer, virus infection or autoimmune diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Immunogenic peptide(s) having an HIA-A2.1 binding motif - used for treatment or prophylaxis of cancer, virus infection or autoimmune diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antigen fragment 2 from HCV has binding affinity for HLA-2.1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 46; DB 15; Length 10; 100.0%; Pred. No. 0.14; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sidney J;
                                                                                                                                                                                                Example 5; Page 107; 138pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Page 90; 138pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR73105 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93US-0027146.
93US-0073205.
93US-0159184.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sette A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94WO-US02353.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cancer or lymphoma, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1994-302678/37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CYTE-) CYTEL CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Grey HM, Kast WM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 10; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-MAR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-MAR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9420127-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04 - JUN - 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-SEP-1994
```

AAR73105;

AAR73105

ö

Gaps

```
97CA-2209815
                                                                              Melief CJM,
                                                                                              WPI; 1997-549891/50
                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                            1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                    Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                                                                                    10 AA;
                28-APR-1997;
                                23-DEC-1996;
                                       26-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-JUL-1997;
06-NOV-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-JAN-1999
                                                                                                                                                                                                                                                                                                                           10;
                                                                                                                                                                                                                                                                                     Sequence
                                                                               Kast WM,
                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T cell epitope; immune response; human leukocyte antigen; HLA Class I; vaccine; immunogenic; major histocompatablilty complex; MHC; B cell; disease; anti-tumour; anti-viral.
                                                                                                                                                                                                                                                                                                AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides from the core, El, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptide specific cytotoxic T-cell activity. The peptides AR84570-77 were found to have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HPV16 E7 peptide (pos. 82-90) capable of binding to HLA-A*0201.
                                                                                                                                                                                                                                                            Novel molecule comprising a cytotoxic T cell epitope - used to vaccinate against hepatitis C viral infection
                                                                                                                                                                                                                                                                                                                                                                                         ó
                                                                                                                                                                                                                                                                                                                                                                          DB 16; Length 10;
                                                                                            Cytotoxic T-cell epitope, aa 178-187 of HCV-1 core region.
                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                            Hepatitis C virus; HCV; epitope; vaccine; immunogen.
                                                                                                                                                                                                                                                                                                                                                                            0.14;
                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. 0.1
Mismatches
                                                                                                                                                                                                                                                                                                                                                                         Score 46;
                                             AAR84571 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW39559 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                    Claim 1; Page 60; 85pp; English
                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human papillomavirus type 16
                                                                                                                                                                             95WO-US03224
                                                                                                                                                                                            94US-0214650.
                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                            (SCRI ) SCRIPPS RES INST
                                                                                                                                                                                                                            Cerny A, Chisari FV;
                                                                                                                                                                                                                                            WPI; 1995-336941/43.
1 LLALLSCLTV 10
                                                                                                                             Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                  10 AA;
                                                                                                                                            WO9525122-A1
                                                                                                                                                                            16-MAR-1995;
                                                                                                                                                                                            17-MAR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9741440-A1
                                                                            25-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-JUN-1998
                                                                                                                                                            21-SEP-1995
                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW39559;
                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW39559
                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                      쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

```
Peptides AAW39430-W39734 are used in a novel method for the selection of immunogenic T-cell peptide epitopes present in polypeptide antigens. The method involves the identification of peptide sequences capable of binding to an HLA (human leukocyte antigen) class I molecule and measuring the binding of this epitope peptide to the HLA class I copetide. The stability of binding of the peptide and MHC (major histocompatability complex) class I molecule is measured on intact histocompatability complex) class I molecule is measured on intact human B cells carrying the MHC molecule at their cell surfaces. The method can be used to select peptide epitopes for generating vaccines against a disease associated with the polypeptide, e.g. cancers or AIDS. The peptide epitopes are especially T-cell peptide epitopes with strong anti-tumour and anti-viral immune responses. Peptides AAW39557-W39559 are conserved human papilloma virus type 16 (HPV16) E6 derived peptides used in an assay to determine immunogenicity and binding affinity to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                            Method of selecting T cell peptide epitope(s) - by measuring the stability of HLA class I-peptide complexes on intact B cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cytotoxic T-lymphocyte response, CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                SH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                Der Burg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                Van
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 46; DB 18;
100.0%; Pred. No. 0.14;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                Toes REM,
                                                                                                                                                                                                                      SCIS-) SCI SEED CAPITAL INVESTMENTS BV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HLA Class I motif peptide SEQ ID NO:412.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 2; Page 63; 109pp; English.
                                                                                                                                                                                                                                                                                            Offringa R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAY10482 standard; Peptide; 10 AA.
97WO-NL00229
                                                                      96EP-0203670
                                                                                                     96EP-0201145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US14289.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97US-0988320.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                   (UYLE-) RIJKSUNIV LEIDEN
```

ó

```
œ
                                                                                                                                                                                                                                                                                                                                                                                                                                AAJ03042
   ò
                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 an immunological cytotoxic Tiymphnotyte (TL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the level of the antigen in the mammal's lymphatic system to maintain the level of the antigen. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-special multilineage antigen, a embryonic antigen, an embryonic antigen, an embryonic antigen, an embryonic antigen. They can be used for the treatment of disease such as cancer, e.g. mailgnant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes that is necessary to keep CTL active, cyctooxic and recirculating through the body. AAX10071 to AAX10639 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                            The present invention describes a method of inducing and/or sustaining
                                                                       Inducing a cytotoxic T lymphocyte response - by maintaining a level
                                                                                   antigen in the lymphatic system of a mammal so as to provide a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 46; DB 20; Length 10; 100.0%; Pred. No. 0.14; ive 0; Mismatches 0; Indels
                                                                                               sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T cell epitope/MHC ligand SEQ ID NO:150.
                                                                                                                     Disclosure; Page 42; 199pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY10220 standard; Peptide; 10 AA.
(CTLI-) CTL IMMUNOTHERAPIES CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98WO-US14289.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0988320.
97CA-2209815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                         Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Simard JJL;
                                               WPI; 1999-120514/10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                             10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9902183-A2
                        Kuendig TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kuendig TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                                                                                                              Sequence
 g
                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AA000010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The
                                                                                                                                                                                                                                                        an immunological cytotoxic Tlymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal slymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes place in the militu of the lymphodic organ, and its ustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAV10071 to AAV10639 represent examples of peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                              invention describes a method of inducing and/or sustaining
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chesnut R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 46; DB 20; Length 10; 100.0%; Pred. No. 0.14; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Livingston BD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Southwood S, Livin
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Page 174; 214pp; English.
                                                                                                                                                     Disclosure; Page 29; 199pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAJ03042 standard; Peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus epitope #3033.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (EPIM-) EPIMMUNE INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sette A, S
Baker DM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antiviral.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAJ03042;
```

us-08-854-825-2.rag

'n

```
Hepatitis C virus epitope #3079.
                                                                                                                                                                                                                                                                          AA;
                                                                WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200121189-A1
                                                                                                                                                                                                                                                                          12
                                                                                                                19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-JUL-1999;
                                                                                29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                         02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-MAR-2001
                                                                                                                                                Sette A,
Baker DM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sette A,
Baker DM,
                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                         AAJ03348
                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                  AAJ03348
 ò
                                                                                                                                                                                                                                                                                                                                               g
                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                               The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifis. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                               Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                A new composition useful as a vaccines against hepatitis C virus
                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                         Я;
                                         15;
                                                                                                                                                                                                                                                                                                                         Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 22; Length 15;
                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                        Length
                                                       ;
0
                                                                                                                                                                                                                                                                                                                        Southwood S, Livingston BD,
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                       22;
                                       DB 22
0.21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.21;
                                       Score 46; DB Pred. No. 0.23; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 46; DE
llarity 100.0%; Pred. No. 0.2
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                Disclosure; Page 174; 214pp; English.
                                                                                                                               AAJ03056 standard; Peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAJ03088 standard; Peptide; 15 AA.
                                                                                                                                                                                Hepatitis C virus epitope #3047
                                                       .
0
                                       100.0%;
100.0%;
                                                                                                                                                                                                                                                                        19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                        99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                               (first entry)
                                     Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                        (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                        Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                               WPI; 2001-308046/32
                                                                      1 LLALLSCLTV 10
                                                                               Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                       Hepatitis C virus.
                A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                15 AA;
                                                                                                                                                                                                                                       WO200121189-A1.
               15
                                                                                                                                                                                                                                                                                        19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-JUL-2001
                                                                                                                                                               02-JUL-2001
                                                                                                                                                                                                                                                       29-MAR-2001
                                                                                                                                                                                                                                                                                                                        Sette A,
Baker DM,
                                                                                                                                                                                                         antiviral
                                                                                                                                              AAJ03056;
                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAJ03088
                                                                                                                σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10
                                                                                                                       AAJ03056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAJ03088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                               RESULT
S X C
                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΩĪ
                                                                       ò
                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding mottlfs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif; antiviral.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chesnut R;
                                                                                                                                                                                                                                                                                                                                                                                   Chesnut R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Southwood S, Livingston BD,
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                   Livingston BD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 46; DB 22;
100.0%; Pred. No. 0.21;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                Southwood S, Livi
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 174; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAJ03348 standard; Peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus epitope #3339.
                                                                                                                                                                                                                              19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                              99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                 (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 11allscltv 13
                                                                       Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus.
```

Seguence

AAJ03362;

AAJ03362

q

õ

```
The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                         Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus; HCV; immunogen; core region; nucleocapsid; immunodominant; T cell epitope; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 46; DB 22; Length 15;
Pred. No. 0.21;
Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus peptide CORE 29 (residues 169-188).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Livingston BD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Southwood S, Livin
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page 177; 214pp; English.
                                                                                 AAJ03394 standard; Peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20 AA.
                                                                                                                                                                                      Hepatitis C virus epitope #3385.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 10; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                             99US-0357737.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR84501 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                               (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-308046/32
6 llallscltv 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                         Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15 AA;
                                                                                                                                                                                                                                                                                                         WO200121189-A1.
                                                                                                                                                                                                                                                                                                                                                                            19-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                             19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W09512677-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-JAN-1997
                                                                                                                                                    02-JUL-2001
                                                                                                                                                                                                                                                                                                                                          29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A,
DM,
                                                                                                                                                                                                                                           antiviral
                                                                                                                    AAJ03394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR84501;
                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Baker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14
                                                                   AAJ03394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR84501
                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
a
                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δŻ
                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                               The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding mctifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                 A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
                                                                                                                                                                                                                                                           Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 15;
                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Livingston BD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ch 100.0%; Score 46; DB 22; Similarity 100.0%; Pred. No. 0.21; 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                       100.0%; Score 46; DB 22; 100.0%; Pred. No. 0.21;
                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Southwood S, Livi
Kubo RT, Grey HM;
                                                             Disclosure; Page 177; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Page 177; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                           AAJ03362 standard; Peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus epitope #3353
                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                     Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sidney J,
, Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                        1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15 AA;
                                                                                                                                                                                                      15 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sette A,
Baker DM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     antiviral
```

ö

Gaps

; 0

Sequence

Best Loca Matches

à

Baker

```
Sequence
  200000000000000x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                A series of overlapping peptides (including the present sequence) was synthesised based on sequences in the core, El and EZ/MS1 regions of hepatitis C virus. The peptides were used as antigens in lymphoproliferative assays to identify the main T-cell epitopes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                         Hepatitis C Virus immunogenic polypeptide contg. a T-cell stimulating epitope - from core, El, E2 and NS3 regions, useful in production of vaccines, therapeutic agents, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Novel composition comprising a hepatitis C virus antisense polynucleotide which is complementary to or corresponds to a sense strand of the virus genome, and selectively hybridises to it -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein encoded by a novel hepatitis C virus cDNA clone CA216a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus; HCV; antisense polynucleotide; polyprotein; viral infectivity; viral replication.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 46; DB 16; Length 20; 100.0%; Pred. No. 0.28; or Mismatches 0; Indels
                                                                                                                                                                            Maertens G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB18534 standard; Protein; 135 AA.
                                                                                                                                                                                                                                                                                                                                                                                   Example 4; Page 51; 105pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example; Fig 10; 75pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89US-0325338.
89US-0341334.
89US-0355002.
90EP-0302866.
                       94WO-EP03555.
                                                                       93EP-0402718.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ΰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-MAR-1990; 2000EP-0109602
                                                                                                                                                                            Leroux-Roels G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 100,
Matches 10; Conservative
                                                                                                                          ⋛
                                                                                                                          (INNO-) INNOGENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Houghton M, Choo Q,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2000-566891/53.
                                                                                                                                                                                                                         WPI; 1995-193822/25.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10 11allscltv 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-PSDB; AAA75290
                     28-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-APR-1989;
18-MAY-1989;
16-MAR-1990;
                                                                       04-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EP1034785-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-MAR-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-SEP-2000
                                                                                                                                                                         Deleys R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB18534;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB18534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              THE STATE OF THE S
```

us-08-854-825-2.rag

```
158, App
160, App
170, App
170, App
192, App
195, App
197, App
155, App
155, App
156, App
156, App
156, App
156, App
160, App
                 Sedinence Sedine
                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Chisari, Francis V.
APPLICANT: Cerny, Andreas
TITLE OF INVENTION: PEPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 46; DB 1; Length 10; 100.0%; Pred. No. 0.034; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/214,650
US-08-290-665A-158
US-08-290-665A-159
US-08-290-665A-160
US-08-290-665A-191
US-08-290-665A-192
US-08-290-665A-195
US-08-290-665A-195
US-08-290-665A-195
US-08-290-665A-195
US-08-290-665A-195
PCT-US95-10398-155
PCT-US95-10398-156
PCT-US95-10398-159
PCT-US95-10398-159
PCT-US95-10398-160
PCT-US95-10398-170
PCT-US95-10398-170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
ADDRESSEE: Leydig, Voit & Mayer
STREET: Two Prudential Plaza, Suite 4900
CITY: Chicago
                                                                                                                                                                                                                                                                                                           ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY AGENT INFORMATION:
NAME: Silvert, Donald J.
REGISTRATION NUMBER: 37552
REFERENCE/DOCKET NUMBER: 61230
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2, Application US/08214650 Patent No. 5709995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE: (312) 616-5600
TELEFAX: (312) 616-5700
TELEX: 25-333
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 10 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    / MOLECULE TYPE: peptide US-08-214-650-2
   unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: amino acid
STRANDEDNESS: Si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE: I
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                    US-08-214-650-2
    Duery Match
   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31, Appl
33, Appl
3, Appli
31, Appl
33, Appl
3, Appli
                                                                                                                       (without alignments)
3.954 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24, P
155,
156,
157,
                                                                                                         Search time 61.77 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence Sequence Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1: /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
5: /cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/2/iaa/pcTUS_COMB.pep:*
               GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT - US95-02121-47
PCT - US95-02121-126
US-08-484-4818-91
US-08-836-075A-24
US-08-836-075A-30
US-08-836-075A-32
US-08-836-075A-33
US-08-836-075A-33
US-08-483-695-33
US-08-487-231-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-290-665A-155
US-08-290-665A-156
US-08-290-665A-157
                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-487-231-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-214-650-2
                                                                                                                                                                                                                                                                           231628 seqs, 24425594 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                       August 23, 2002, 09:57:50;
                                                                                                                                                                                                                                                                                                                                                                                                   Maximum Match 100%
Listing first 45 summaries

    protein search, using sw model

                                                                                                                                                                                                                               BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Issued_Patents_AA:*
                                                                                                                                                                                                                                                                                                                                      seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
                                                                                                                                                                    US-08-854-825-2
46
                                                                                                                                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Match 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Perfect score:
                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                      Minimum DB
Maximum DB
                                                                          OM protein
                                                                                                                                                                                                                                                                           Searched:
                                                                                                                                                                                                     Seguence:
                                                                                                                                                                                                                                                                                                                                                                                                                                               Database
                                                                                                     Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š.
```

Gaps

QQ

```
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPRESSE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
STATE: CA
COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATION SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/444,818
FILING DATE:
CLASSIFICATION DATA:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 91, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NANBV Diagnostics and Vaccines NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 46; DB 5; L. Best Local Similarity 100.0%; Pred. No. 0.034; Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                PFILING DATE: 25-AUG-1992

APPLICATION DATA:
APPLICATION NUMBER: US 07/874,491

FILING DATE: 27-APR-1992

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/827,682

FILING DATE: 29-JAN-1992

PRIOR APPLICATION NUMBER: US 07/749,568

FILING DATE: 26-AUG-1991

ATTORNEY/AGENT INFORMATION:
NAME: PARTMELES, STEVEN W.

RESTRATION NUMBER: 31,990

REFERENCE/DOCKET NUMBER: 14137-26-4PC

TELECOMMUNICATION:
                           .ч.пвык: PCT/US95/02121
16-FEB-1995
v.
                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/197,484
FILING DATE: 16-FEB-1994
                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/935,811
FILING DATE: 26-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: (206) 467-9600
TELEFAX: (415) 543-5043
INFORMATION FOR SEQ ID NO: 126:
SEQUENCE CHARACTERISTICS:
LENGTH: 10 aming acids
                      CURRENT APPLICATION DATA: APPLICATION NUMBER: PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid
STRANDEDNESS: unknown
TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLALLSCLTV 10
                                                                       FILING DATE: 1 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PCT-US95-02121-126
    SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-444-818-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
                                                                                                         Sequence 47, Application PC/TUS9502121
GENERAL INFORMATION:
APPLICANT:
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR ELICITING
TITLE OF INVENTION: CTL IMMUNITY
NUMBER OF SEQUENCES: 153
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPOSITIONS AND METHODS FOR ELICITING CTL IMMUNITY 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
100.0%; Score 46; DB 5; Length 10;
Best Local Similarity 100.0%; Pred. No. 0.034;
Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
FILLIG DATE: PCT/US95/02121
FILLIG DATE: 16-FEB-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Parmele, Steven W.
REGISTRATION NUMBER: 31,990
REGISTRATION NUMBER: 14137-26-4PC
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 467-9600
INFORMATION FOR SEQ ID NO: 47:
SEQUENCE CHARACTERISTICS:
LENGTH: 10 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRICR APPLICATION:
PRICR APPLICATION NUMBER: US 08/197,484
FILING DATE: 16-FEB-1994
PRICR APPLICATION DATA:
APPLICATION NUMBER: US 07/935,811
FILING DATE: 26-AUG-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/874,491
FILING DATE: 27-APR-1992
PRIOR APPLICATION NUMBER: US 07/827,682
FILING DATE: 29-JAN-1992
PRIOR APPLICATION NUMBER: US 07/827,682
FILING DATE: 29-JAN-1992
PRIOR APPLICATION NUMBER: US 07/827,682
FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 126, Application PC/TUS9502121
GENERAL INFORMATION:
APPLICANT:
TITLE OF INVENTION: COMPOSITIONS AND PTITLE OF INVENTION: CTL IMMUNITY
NUMBER OF SEQUENCES: 153
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
COMPUTER: IBM PC Compatible
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; MOLECULE TYPE: peptide PCT-US95-02121-47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: amino acid
STRANDEDNESS: un
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 LLALLSCLTV 10
1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 3
PCT-US95-02121-126
                                                                                          PCT-US95-02121-47
                                                                       RESULT
```

g ô

ó

Gaps

```
Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                              1 LLALLSCLTV 10
                                                                                                                                                          19 LLALLSCLTV 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19 LLALLSCLTV 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: 1
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 4, Application US/08836075A
Patent No. 6180768
GENERAL INFORMATION:
APPLICANT: STUTVER, LIEVEN
TITLE OF INVENTION: NEW SEQUENCES OF HEPATITIS C VIRUS GENOTYPES
TITLE OF INVENTION: ABD THEIR USE AS PROPHYLACTIC, THERAPEUTIC AND DIAGNOSTIC
TITLE OF INVENTION: AGENTS
NUMBER OF SEQUENCES: 207
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 46; DB 4; Length 135; 100.0%; Pred. No. 0.44; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA
ZIP: 77210-4433
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Microsoft Word 6.0 / ASCII text output
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/836,075A
FILING DATE: 21 Apr 1997
RIOR APPLICATION DATE: 23 OCT 1995
FILING DATE: 25 OCT 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: ARNOLD, WHITE & DURKEE STREET: P.O. BOX 4433 CITY: HOUSTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: EP 94870166.9 FILING DATE: 21 oct 1994 PRIOR APPLICATION DATA: APPLICATION NUMBER: EP 95870076.7 FILING DATE: 28 JUN 1995 ATTORNEY/AGENT INFORMATION:
                                                                                                     0110.002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: KAMMERER, PATRICIA A.
REGISTRATION NUMBER: 29,775
REFERENCE/DOCKET NUMBER: INNS:004
INFORMATION FOR SEQ ID NO: 4:
FILING DATE: 14-MAR-1995
ATORNEY/AGENT INFORMATION:
NAME: HATDIA, Aliza A.
REGISTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 0110.
TELECOMUNICATION INFORMATION:
TELEPHONE: (508)359-3876
TELEFAX: (508)359-3885
INFORMATION FOR SEQ ID NO: 91:
SEQUENCE CHARACTERISTICS:
LENGTH: 135 amino acids
TYPE: amino acid
TYPE: amino acid
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 149 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: protein US-08-444-818-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear
MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 LLALLSCLTV 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TEXAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE: TE
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-836-075A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-836-075A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
```

```
US-08-836-075A-24

Sequence 24, Application US/08836075A

Sequence 24, Application US/08836075A

Sequence 24, Application US/08836075A

Sequence 24, Application US/08836075A

FORTING OF INFORMATION:

APPLICANT: STUYUER, LIEVEN

TITLE OF INVENTION: AND THEIR USE AS PROPHYLACTIC, THERAPEUTIC AND DIAGNOSTIC

TITLE OF INVENTION: AGENTS

NUMBER OF SEQUENCES: 207

CORRESPONDENCE ADDRESS:
                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
0
100.0%; Score 46; DB 4; Length 149; 100.0%; Pred. No. 0.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.0%; Score 46; DB 4; Length 149; Best Local Similarity 100.0%; Pred. No. 0.48; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: TEAMS

COMPUTER: TEAMS

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: MICROSOFT WORD 6.0 / ASCII text output
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/836,075A
FILING DATE: 21 Apr 1997
PRIOR APPLICATION NUMBER: PCT/EP95/04155
FILING DATE: 23 Oct 1995
PRIOR APPLICATION NUMBER: EP 94870166.9
FILING DATE: 21 Oct 1994
PRIOR APPLICATION NUMBER: EP 95870076.7
FILING DATE: 28 Jun 1995
ATTORNEY/ARENT INFORMATION:
NAME: KAMMERER, PATRICIA A.
REGISTRATION NUMBER: 29,775
REFERENCE/DOCKET NUMBER: 29,775
REFERENCE/DOCKET NUMBER: 29,775
REFERENCE/DOCKET NUMBER: 29,775
REFERENCE/DOCKET NUMBER: 29,775
REFERENCE/COCKET NUMBER: 29,775
REFERENCE/DOCKET NUMBER: 29,775
REFERENCE/DOCKE
                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: ARNOLD, WHITE & DURKEE STREET: P.O. BOX 4433 CITY: HOUSTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-836-075A-30; Sequence 30, Application US/08836075A; Patent No. 6180768; CENERAL INFORMATION:
                                                                                           ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: MAERTENS, GEERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         : 149 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; MOLECULE TYPE: peptide US-08-836-075A-24
```

```
US-08-836-075A-32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-08-836-075a-32
Sequence 32, Application US/08836075A
Sequence 32, Application US/08836075A
Patent No. 61807BATION:
GENERAL INFORMATION:
APPLICANT: MAERTENS, GEERT
APPLICANT: STUVER, LIEVEN
TITLE OF INVENTION: NEW SEQUENCES OF HEPATITIS C VIRUS GENOTYPES
TITLE OF INVENTION: AGENTS
TITLE OF INVENTION: AGENTS
NUMBER OF SEQUENCES: 207
CORRESPONDENCE ADDRESS:
                              HEPATITIS C VIRUS GENOTYPES PROPHYLACTIC, THERAPEUTIC AND DIAGNOSTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match 100.0%; Score 46; DB 4; Length 149; Best Local Similarity 100.0%; Pred. No. 0.48; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                       COUNTRY. 1EAAS
COUNTRY. 1EAAS
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: MICROSOft WORD 6.0 / ASCII text output
CURRENT APPLICATION DATA:
APPLICATION NUMBER: 08/08/836,075A
FILING DATE: 21 Apr 1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: EP 94870166.9
FILING DATE: 23 Oct 1995
FILING DATE: 21 Oct 1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: EP 94870166.9
FILING DATE: 28 Jun 1995
ATTORNEY/AGENT: INFORMATION:
NUMBER: KAMMERER, PATRICIA A.
REGISTRATION NUMBER: 29,775
RESERRECE/DOCKET NUMBER: 21 NUMBER: 23,775
RESERRECE/DOCKET NUMBER: 23,775
APPLICANT: STUYVER, LIEVEN
TITLE OF INVENTION: NEW SEQUENCES OF H
TITLE OF INVENTION: AND THEIR USE AS F
TITLE OF INVENTION: AGENTS
NUMBER OF SEQUENCES: 207
CORRESPONDENCE ADDRESS:
ADDRESSEE: ARNOLD, WHITE & DURKEE
STREET: P.O. BOX 4433
  LIEVEN
NEW SEQUENCES OF
AND THEIR USE AS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE: ARNOLD, WHITE & DURKEE STREET: P.O. BOX 4433 CITY: HOUSTON STATE: TEXAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: I. INFORMATION FOR SEQ ID NO: 30: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 149 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: USA
ZIP: 77210-4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: P.O. BC
CITY: HOUSTON
STATE: TEXAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-836-075A-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
```

```
APPLICANT: MAERTENS, GEBET
APPLICANT: STUYVER, LIEVEN
TITLE OF INVENTION: NEW SEQUENCES OF HEPATITIS C VIRUS GENOTYPES
TITLE OF INVENTION: AGENTS
TITLE OF INVENTION: AGENTS
TITLE OF INVENTION: AGENTS
TOWBER OF SEQUENCES: 207
CORRESPONDENCE ADDRESS:
ADDRESSEE: ARNOLD, WHITE & DURKEE
STREET: P.O. BOX 4433
CITY: HOUSTON
STATE: TEXAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
100.0%; Score 46; DB 4; Length 149;
Best Local Similarity 100.0%; Pred. No. 0.48;
Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: USA

ZIP: 77210-4433

COMPUTER READABLE POPM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: MICROSOFT WORD 6.0 / ASCII text output
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US/08/836,075A
FILING DATE: 21 Apr 1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/EP95/04155
FILING DATE: 23 Oct 1995
FILING DATE: 23 Oct 1995
FILING DATE: 21 COT 1994
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: 21 COT 1994
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: 21 COT 1994
SOFTWARE: Microsoft Word 6.0 / ASCII text output CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/836,075A
                                                                                                                                    APPLICATION NUMBER: PCT/EP95/04155
FILING DATE: 23 Oct 1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: EP 94870166.9
FILING DATE: 21 Oct 1994
PRIOR APPLICATION NUMBER: EP 95870076.7
FILING DATE: 28 Jun 1995
ATTORNEY/AGENT INFORMATION:
                                           FILING DATE: 21 Apr 1997
PRIOR APPLICATION DATA:
APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: EP 95870076.7 FILING DATE: 28 Jun 1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-836-075A-34
; Sequence 34, Application US/08836075A
Patent No. 6180768
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                             NAME: KAMMERER, PATRICIA A. REGISTRATION NUMBER: 29,775
REFERENCE/DOCKET NUMBER: INN
INFORMATION FOR SEQ ID NO: 32:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: KAMMERER, PATRICIA A. REGISTRATION NUMBER: 29,775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 149 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19 LLALLSCLTV 28
```

```
Sequence 3, Application US/08483695
Patent No. 5866139
GENERAL INFORMATION:
APPLICANT: Brechot, Christian
APPLICANT: Kremsdorf, Dina
APPLICANT: Porchon, Colette
TITLE OF INVENTION: Nucleotide and Peptide Sequences of a
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 31, Application US/08483695
Patent No. 5866139
GENERAL INFORMATION:
APPLICANT: Brechot, Christian
APPLICANT: Rremsdorf, Dina
APPLICANT: Porchon, Colette
TITLE OF INVENTION: Nuclectide and Peptide Sequences of a
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 46; DB 2; Length 166; 100.0%; Pred. No. 0.54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Finnegan, Henderson, Farabow, Garrett
ADDRESSEE: Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/483,695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 05286-0001-00000
TELECOMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
TELEFAX: 202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/965,285
FILING DATE: 18-MAR-1993
APPLICATION NUMBER: FR 91 06 882
FILING DATE: 06-UUN-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                          1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 166 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , MOLECULE TYPE: peptide US-08-483-695-3
                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
ZIP: 20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21 LLALLSCLTV 30
  19 LLALLSCLTV 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 12
US-08-483-695-31
                                                                 RESULT 11
US-08-483-695-3
                                                                                                                                                                                                                                                                                                                                                                                            STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE:
  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: STUYNER, LIEVEN
TITLE OF INVENTION: NEW SEQUENCES OF HEPATITIS C VIRUS GENOTYPES
TITLE OF INVENTION: AND THEIR USE AS PROPHYLACTIC, THERAPEUTIC AND DIAGNOSTIC
TITLE OF INVENTION: AGENTS
NUMBER OF SEQUENCES: 207
CORRESPONDENCE ADDRESS:
ADDRESSEE: ARNOLD, WHITE & DURKEE
STREET: P.O. BOX 4433
                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.0%; Score 46; DB 4; Length 149; Best Local Similarity 100.0%; Pred. No. 0.48; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                  DB 4; Length 149;
                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER FAIDBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Microsoft Word 6.0 / ASCII text output
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/836,075A
FILNG DATE: 21 Apr 1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                100.0%; Score 46; DB 4; 100.0%; Pred. No. 0.48;
                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PALLICATION NUMBER: PCT/EP95/04155
FILING DATE: 23 Oct 1995
RIOR APPLICATION DATE: 3 PARLICATION NUMBER: EP 94870166.9
FILING DATE: 21 Oct 1994
PRIOR APPLICATION NUMBER: EP 95870076.7
FILING DATE: 28 Jun 1995
ATTORNEY/AGENT INFORMATION:
NAME: KAMMERER, PATRICIA A.
REGISTRATION NUMBER: 29,775
REFERENCE/DOCKET NUMBER: 1NNS:004
INNS:004
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 38, Application US/08836075A Patent No. 6180768 GENERAL INFORMATION: APPLICANT: MAERTENS, GEERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: 38: SEQUENCE CHARACTERISTICS:
REFERENCE/DOCKET NUMBER:
               INFORMATION FOR SEQ ID NO: 3
SEQUENCE CHARACTERISTICS:
LENGTH: 149 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      149 amino acids
                                                                                                                                                                                                           Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                        ; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-836-075A-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: peptide US-08-836-075A-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: USA
ZIP: 77210-4433
                                                                                                                                                                                                                                                                                                      1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                 19 LLALLSCLTV 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HOUSTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: TEXAS
                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-836-075A-38
                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
```

```
APPLICANT: Brechot, Christian
APPLICANT: Kremsdorf, Dina
APPLICANT: Kremsdorf, Dina
APPLICANT: Porchon, Colette
TITLE OF INVENTION: Nucleotide and Peptide Sequences of a
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
NUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 46; DB 2; Length 166; 100.0%; Pred. No. 0.54; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Finnegan, Henderson, Farabow, Garrett ADDRESSEE: Dunner STREET: 1300 I Street, N.W. CITY: Washington STATE: DC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: USA
ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDLUM TYPE: Floppy disk
COMPUTER: IBM PC COMPAtible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PAtentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                     NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REPERENCE/DOCKET NUMBER: 05286-0001-00000
TELECHOMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
TELEFAX: 202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25,146
FR: 05286-0001-00000
                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/965,285
FILING DATE: 18-MAR-1993
APPLICATION NUMBER: FF 91 06 882
FILING DATE: 06-UNN-1991
ATTORNEY/AGENT INFORMATION:
         CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/483,695
FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/07/965,285 FILING DATE: 18-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 91 06 882
FILING DATE: 06-JUN-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application US/07965285 Patent No. 5879904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 05:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4400
TELEFAX: 202-408-4400
                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: 33: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 166 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Meyers, Kenneth J
REGISTRATION NUMBER: 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-483-695-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21 LLALLSCLTV 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-07-965-285-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 33, Application US/08483695
Patent No. 5866139
GENERAL INFORMATION:
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT:
APPLICANT:
Porchon, Colette
TITLE OF INVENTION: Nucleotide and Peptide Sequences of a
TITLE OF INVENTION: Applications
NUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farabow, Garrett &
ADDRESSEE: Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 46; DB 2; Length 166;
100.0%; Pred. No. 0.54;
.ive 0; Mismatches 0; Indels
NUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farabow, Garrett & ADDRESSEE: Dunner
STREET: 1300 I Street, N.W.
CITY: Washington
STATE: DC
COUNTRY: USA
                                                                                                                                                                                                                                                   COMPUTE: IN PC compatible
COMPUTE: IN PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURREMY APPLICATION DATA:
APPLICATION NUMBER: US/08/483,695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 05286-0001-00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
TELEFAX: 202-408-4400
                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
CLASSIFICATION:
PROOF APPLICATION:
PROOF APPLICATION NUMBER: US/07/965,285
FILING DATE: 18-WAR-1993
APPLICATION NUMBER: FR 91 06 882
FILING DATE: 06-JUN-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO: 31:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         r: 1300 I Street, N.W. Washington
                                                                                                                                                                               ZIP: Z0005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENCTH: 166 amino acids
TYPE: amino acid
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-483-695-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match
Best Local Similarity 100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21 LLALLSCLTV 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-483-695-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

Gaps

; 0

```
WEBULT 13

Sequence 31. Application US/07965285

Sequence 31. Application US/07965285

Patent No. 5879904

SEMERAL INFORMATION:

APPLICANT: Brechot, Christian

APPLICANT: Brechot, Colette

TITLE OF INVENTION: Nuclectide and Peptide Sequences of a

TITLE OF INVENTION: Nuclectide and Peptide Sequences of a

TITLE OF INVENTION: Applications

NUMBER OF SEQUENCES: 46

CORRESPONDENCE ADDRESS:

ADDRESSEE: Finnegan, Henderson, Farabow, Garrett &

STREET: 1300 I Street, N.W.

CITY: Washington

STRATE: DC

CONNETTE OF TOPPY disk

CONNETTE OF TOPPY disk

CONNETTE READABLE FORM:

WEDIUM TYPE: Floppy disk

CONNETTE READABLE FORM:

WEDIUM TYPE: Floppy disk

CONNETTE READABLE FORM:

MEDIUM TYPE: Floppy disk

MEDIUM TYPE: Floppy disk

CONNETTE READABLE FORM:

MEDIUM TYPE: Floppy disk

MEDIUM 
                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                   Query Match
100.0%; Score 46; DB 2; Length 166;
Best Local Similarity 100.0%; Pred. No. 0.54;
Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
Best Local Similarity 100.0%; Score 46; DB 2; Length 166; Best Local Similarity 100.0%; Pred. No. 0.54; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/POCKET NUMBER: 05286-0001-00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
TELEFAX: 202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO: 31: SEQUENCE CHARACTERISTICS: LENGTH: 166 amino acids TYPE: amino acid
: INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 166 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-07-965-285-31
                                                                                                                                                                                             ; MOLECULE TYPE: peptide US-07-965-285-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21 LLALLSCLTV 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 LLALLSCLTV 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

Search completed: August 23, 2002, 09:57:51 Job time: 201 sec

```
August 23, 2002, 09:56:42; Search time 78.82 Seconds (without alignments) 12.191 Million cell updates/sec
GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                                                     US-08-854-825-2
46
                                                                                                                                 Run on:
```

BLOSUM62 Gapop 10.0 , Gapext 0.5 1 LLALLSCLTV 10 Title: Perfect score: Sequence: Scoring table:

283138 seqs, 96089334 residues Searched:

283138 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Description	polyprotein - hepa structural protein genome polyprotein	
SUMMARIES		
SUMMA	32740 A44150 JQ1584 S18032 S18032 S18035 S18030 GNWVCH S40770 S21471 PC1284 S21471 PC1284 S12707 S12707 S12707 S12707 S12707 S12707 S12707 S12707 S12707 S12707 S128031 GNWVCG S1897 GNWVCG S18965 C34271 JQ0881 JQ0881	
DB		
å Query Match Length	189 513 640 782 782 3010 3010 3011 3011 3011 441 782 782 782 782 782 782 783 3010 3010 3010 3010 4010 404 404 404 404 404 404	
% Query Match	1000.0 10000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1	
Score	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
Result No.	200 200 200 200 200 200 200 200 200 200	

hypothetical prote	cytochrome P450 2A	cytochrome P450 2A	hypothetical prote	hypothetical prote	coumarin 7-hydroxy	qenome polyprotein	cytochrome P450 -	genome polyprotein	hypothetical prote	cathepsin B (EC 3.	hypothetical prote	hypothetical prote	transmembrane prot	hypothetical prote	probable sugar tra
T18784	A47494	B47494	T20662	T09628	O4HUA6	JN0265	138966	JC5620	T24732	КНВОВ	C69283	T45543	F95069	T47026	AG0235
7	(7)	7	7	7	ч	~	7	-	7	Н	~	7	7	~	7
423	494	464	525	82	464	322	497	3014	308	335	597	199	387	409	409
82.6	82.6	82.6	82.6	80.4	80.4	78.3	78.3	78.3	76.1	76.1	76.1	73.9	73.9	73.9	73.9
38	38	38	38	37	37	36	36	36	32	32	35	34	34	34	34
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

C; Date: 19-Mar: 1997 #sequence_revision 05-Dec-1998 #text_change 17-Nov-2000 C; Accession: S37740 R; Vassilev, V.B.; Viazov, S.O.; Kotova, E.Y.; Nosikov, V.V. R; Vassilev, V.B.; Viazov, S.O.; Kotova, E.Y.; Nosikov, V.V. Submitted to the EMBL Data Library, April 1993 A; Description: Evidence of new HCV variant of European isolate in Russia. A; Reference number: S37740 A; Molecule type: genomic RNA A; Molecule type: genomic RNA A; Residues: 1-189 < VANS> A; Cross-references: EMBL: X71407 C; Superfamily: hepatitis C virus genome polyprotein C; Keywords: capsid protein; envelope protein; polyprotein C; Keywords: capsid protein; envelope protein M #status predicted <epm> F; 116-189/Product: envelope protein M #status predicted <epm></epm></epm>
Query Match Best Local Similarity 100.0%; Pred. No. 0.56; Matches 10; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 LLALLSCLTV 10 Db 178 LLALLSCLTV 187
RESULT 2 A44150 structural protein - hepatitis C virus C;Species: hepatitis C virus C;Species: hepatitis C virus C;Species: hepatitis C virus C;Date: 27-Jun-1994 #sequence_revision 27-Jun-1994 #text_change 17-Nov-2000 C;Accession: A44150 R;Ching, W.M.; Wychowski, C.: Beach, M.J.; Wang, H.; Davies, C.L.; Carl, M.; Bradley, Proc. Natl. Acad. Sci. U.S.A. 89, 3190-3194, 1992 A;Fitle: Interaction of immune sera with synthetic peptides corresponding to the stru A;Recession: A44150; MUID:92228749 A;Accession: A44150 A;Status: preliminary; not compared with conceptual translation A;Accession: CHIPS C;Superfamily: hepatitis C virus genome polyprotein C;Superfamily: hepatitis C virus genome polyprotein Best Local Similarity 100.0%; Score 46; DB 2; Length 513; Bast Local Similarity 100.0%; Miscatches D; Todels D; Todels D; Cans

1 LLALLSCLTV 10

ŏλ

```
Protein NS48; nonstructural protein NS4D; nonstructural protein NS5
A; Variety; isolate 17, 1
C; Date: 19:484,-2000 #sequence_revision 19-484,-2000 #text_change 23-Mar-2001
C; Accession: $18030; $31370; A48312; $18029
R; Honda, M; Kaneko, S; Massahl, U; Kobayashi, K; Murakami, S.
A; Necession: $18030
A; Reference number: $18028
A; Accession: $18028
A; Mccession: $18028
A; Mccession: $18030
A; Molecule type: genomic RNA
A; Residues: 1-3010 <400>
A; Molacule type: genomic RNA
A; Raneko, S; Unoura, M.; Kobayashi, K.; Murakami, S.
A; Raneko, S; Unoura, M.; Kobayashi, K.; Murakami, S.
A; Raneko, S; Unoura, M.; Kobayashi, K.; Murakami, S.
A; Raneko, S; Unoura, M.; Kobayashi, K.; Murakami, S.
A; Raneko, S; Unoura, M.; Kobayashi, K.; Murakami, S.
A; Raneko, S; Unoura, M.; Kobayashi, K.; Murakami, S.
A; Raneko, S; Unoura, M.; Kobayashi, K.; Murakami, S.
A; Ritle: Sequence analysis of putative structural regions of hepatitis C virus isolat A; Reference number: A48322; MUID:93119270
A; Molecule type: genomic RNA
A; Residues: 1-47, T', 549-631, V', 623-624, S', 626-652, 'DL', 655-761, 'T', 763-782 <HOW>
A; Molecule type: genomic RNA
A; Residues: 1-47, T', 549-631, V', 623-624, S', 626-652, 'DL', 655-761, 'T', 773-782 <HOW>
A; Molecule type: genomic RNA
A; Residues: 1-47, T', 549-631, V', 623-644, S', 626-652, 'DL', 655-761, 'T', 773-782 <HOW>
A; Molecule type: genomic RNA
A; Residues: 1-510-70 cresidue did for residue 3 as Pro, and TrC for residue 771 as Ser
A; Note: the authors translated the codon A6G for residue 43 as Pro, And TrC for residue 771 as Ser
A; Note: the authors translated the codon A6G for Residue 43 as Pro, TrC
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus
        core protein; envelope protein 1; nonstructural protein 2; NSI/E2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .4.21.98) (nonstru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein; glycoprotein; nonstructur
                                    C; Species: hepatitis C virus
A; Variety: isolate JK3
A; Variety: isolate JK3
C; Date: 30 Jun-1992 #sequence_revision 30-Jun-1992 #text_change 17-Nov-2000
C; Accession: S19875
R; Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
B; Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, R.; Murakami, S.
A; Honda, M.; Raneko, S.
A; Reference number: Squence analysis of putative structural regions of Hepatitis C Virus
A; Reference number: S18029
                                                                                                                                                                                                                                                                                                                                       A. Accession: 519875
A. Accession: 519875
A. Molecule type: genomic RNA
A. Residues: 1-782 < HON.
A. Cross-references: EMBL: X61592; NID: 959482; PIDN: CAA43789.1; PID: 959483
A. Experimental source: isolate JK3
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C virus genome polyprotein
C. Keywords: capsid protein; estatus predicted < MATI>
F. 1-191/Product: core protein #status predicted < MATI>
F. 192-383/Product: envelope protein # status predicted < MATI>
F. 384-733/Product: nonstructural protein 2 (fragment) #status predicted < MATI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genome polyprotein - hepatitis C virus (isolate JK1)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 46; DB 2;
100.0%; Pred. No. 1.7;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
es 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             òχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Cross-references: GB: X84079; NID:g643119; PIDN:CAA58888.1; PID:g643120
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: core protein: envelope protein; glycoprotein; nonstructural protein; polyprof F;1-13) Froduct: core protein ( #status predicted <CPC)
F;192-389/Product: envelope protein E1 #status predicted <EE1>
F;390-640/Product: envelope protein E2 and nonstructural protein NSI #status predicted <F;196,209,234,305,417,430,448,476,540,556,576,623/Binding site: carbohydrate (Asn) (cova
                                                                                                                                                                                                                                                                                      prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        submitted to the EMBL Data Library, September 1991
A; Description: Sequence analysis of putative structural regions of Hepatitis C Virus isc an unuber: $18029
A; Reference number: $18032
A; Accession: $18032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Experimental source: isolate JK4
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: capsid protein; core protein; envelope protein; glycoprotein; nonstructural
F; 1-191/Product: core protein #status predicted <MATI>
F; 192-383/Product: envelope protein | #status predicted <MATI>
F; 384-733/Product: NSI/E2 protein #status predicted <MATI>
F; 384-733/Product: nonstructural protein 2 (fragment) #status predicted <MATI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genome polyprotein - hepatitis C virus (isolate JK4) (fragment)
N;Contains: core protein; envelope protein 1; nonstructural protein 2; NS1/E2 protein
C;Species: hepatitis C virus
A;Variety: isolate JK4
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 17-Nov-2000
C;Accession: S18032
E;Honda, M.; Raneko, S.; Massahi, U.; Kobayashi, K.; Murakami, S.
                                                                                                                                                                                                                                                                                                                                                                               C;Accession: JQ1584
R;Kumar, U.; Cheng, D.; Thomas, H.; Monjardino, J.
J. Gen. Virol. 73, 1521-1525, 1992
A;Tille: Cloning and sequencing of the structural region and expression of putative A;Reference number: JQ1584; MUID:92300349
                                                                                                                                                                                                                              genome polyprotein - hepatitis C virus (strain U.K.) (fragment)
N;Contains: core protein C; envelope protein E1; envelope protein E2; nonstructural
C;Species: hepatitis C virus
C;Date: 17-Apr-1993 *sequence_revision 17-Apr-1993 *text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 46; DB 2; Length 640; 100.0%; Pred. No. 1.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 46; DB 2; Length 782; 100.0%; Pred. No. 1.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genome polyprotein - hepatitis C virus (isolate JK3) (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Cross-references: EMBL: X61594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: genomic RNA
A; Residues: 1-782 <HON>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genomic RNA
178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Residues: 1-640 <KUM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: JQ1584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
S19875
                                                                                                                                                                                             JQ1584
                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

COMP

```
A; Description: Genomic structure of the human prototype strain H of hepatitis C virus A; Reference number: A36814
A; Accession: A36814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alocte: neither amino acid nor nucleotide sequence is given cloud the control of 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F;1616-1862/Product: nonstructural protein NS4a #status predicted <NAA>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <NAB>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Residues: 1-3011 coKA>
A; Cross-references: EMBL:D10749; NID:g221586; PIDN:BAA01582.1; PID:g221587
A; Cross-references: EMBL:D10749; NID:g221586; PIDN:BAA01582.1; PID:g221587
A; Cross-references: EMBL:D10749; NID:g19ama, Y.; Yotsumoto, S.; Tanaka, T.; Yoshizawa, H.; Tsu
Jpn. J. Exp. Med. 60, 167-177, 1990
A; Title: The 5'-terminal sequence of the hepatitis C virus genome.
A; Reference number: PC1284; MUID:91013116
A; Molecule type: genomic RNA
A; Accession: PC1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Experimental source: isolate HC-J1
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: ATP; glycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein; se
F; 2-115/product: capsid protein C #status predicted <CPC>
        protein M; hepacivirin (EC 3.4.21.98) (nonstru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein M; hepacivirin (EC 3.4.21.98) (nonstru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: genomic RNA
A;Residues: 1-301 <1MC>
A;Residues: 1-301 <1MC>
A;Cross-references: GB:M67463; NID:g329737; PIDN:AAA45534.1; PID:g329738
A;Cross-references: GB:M67463; NID:g329737; PIDN:AAA45534.1; PID:g329738
B;Inchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
A;Title: Genomic Structure of the human prototype strain H of hepatitis C virus: A;Reference number: A41546; MUID:92052256
                                                                                                                                                                                                                   C;Accession: A36814; A41546
R;Inchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
submitted to GenBank, July 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                        protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C;Species: hepatitis C virus
A;Note: host Homo sapiens (man)
C;Date: 31-Dec:1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N; Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) protein NS4a; nonstructural protein NS4b; nonstructural protein NS5 C; Species: hepatitis C virus C; Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001 C; Accession: S40770; PC1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Cross-references: GB: D00831; NID: g221511; PIDN: BAA00705.1; PID: g221512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 46; DB 1; Length 3011;
llarity 100.0%; Pred. No. 5.1;
Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Okamoto, H. submitted to the EMBL Data Library, March 1992 A;Referen number: S40770 A;Accession: S40770 A;Accession: S40770 A;Molecule type: genomic RNA
        N; Contains: capsid protein C; envelope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polyprotein - hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Residues: 1-513 <OK2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GNWC3

ANDGACH

AN
F;1863-2013/Product: nonstructural protein NS4b #status predicted <NA5>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,417,423,448,532,540,556,576,623,645/Binding site: carbohydrate (As
                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                             .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                       Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 3011;
                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
5.1;
                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                           5.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome polyprotein - hepatitis C virus (strain H)
                                                                                                                                                                                                                   Score 46; DB; Pred. No. 5.1; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 46; DB
Pred. No. 5.1;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                   100.0%;
100.0%;
                                                                                                                                                                                                              Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                           178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                              1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNWVCH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

us-08-854-825-2.rpr

```
C)Date: 30-Sep-1993 #Sequence_revision 30-Sep-1993 #text_change 17-Nov-2000 C)Accession: $12707  
R)Takenchi, K.: Kubo, Y.: Boomar, S.: Watanabe, Y.: Katayama, T.: Choo, Q.L.: Kuo, G R)Takenchi, K.: Kubo, W.: Boomar, S.: Watanabe, Y.: Katayama, T.: Choo, Q.L.: Kuo, G R)Title: Nucleic Acids Res. 18, 4626, 1990  
A;Title: Nucleotide Sequence of core and envelope genes of the hepatitis C virus geno A;Reference number: $12707; MUID:90356432  
A;Accession: $12707  
A;Accession: $12707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome polyprotein - hepatitis C virus (isolate JK5) (fragment)
N;Contains: core protein; envelope protein 1; nonstructural protein 2; NS1/E2 protein
N;Contains: core protein; envelope protein 1; nonstructural protein 2; NS1/E2 protein
N;Contains: hepatitis C virus
A;Variety: isolate JK5
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 17-Nov-2000
C;Accession: S19876
R;Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
Submitted to the EMBL Data Library, September 1991
R;Description: Sequence analysis of putative structural regions of Hepatitis C Virus
A;Reference number: S18029
A;Accession: S19876
A;Molecule type: genomic RNA
A;Molecule type: Genomic RNA
A;Residues: 1-782 40NA
A;Cross-references: EMBL:X61595; NID:959486; PIDN:CAA43792.1; PID:959487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yoshizawa, H.; Tsu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genome polyprotein - hepatitis C virus (isolate HC-J4) (fragment)
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Accession: PG1284
R;Okamoto, H.; Okada, S.; Sugiyama, Y.; Yotsumoto, S.; Tanaka, T.; Yoshizawa Jpn. J. Exp. Med. G(), 167-177, 1990
A;Fille: The 5'-terminal sequence of the hepatitis C virus genome.
A;Reference number: PC1284; MUID:91013116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: EMBL:D00574; NID:g221656; PIDN:BAA00452.1; PID:g221657 C;Superfamily: hepatitis C virus genome polyprotein C;Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: genomic RNA
A;Residues: 1-513 < CKA>.
A;Cross-references: GB:D00832; NID:g221513; PIDN:BAA00706.1; PID:g221514
C;Superfamily: hepatitis C virus genome polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 441;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 513;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                  polyprotein - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 45; DB 2
Pred. No. 1.7;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 45; DB 3
Pred. No. 1.9;
1; Mismatches
                                                                                                                                                                                                                  N.Contains: core protein; envelope protein C; Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97.8%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97.8%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
'-hac 9; Conservā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 9; Conserv
          13 LLALLSCLTI 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: PC1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14
                                                                                                                                                                                     genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
S19876
          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Species: hepatitis C virus
C;Date: 10-Nov-1997 #sequence_revision 23-Jan-1998 #text_change 17-Nov-2000
C;Accession: PC4407
R;Li, G:; Yao, J.; Peng, W.
R;Li, G:; Yao, J.; Peng, W.
Chinese J. Virol. 13, 24-32, 1997
A;Title: Sequence of genomic region of hepatitis C virus envelope proteins from a Guangd
A;Reference number: PC4407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N:Contains: capsid protein; envelope protein
C;Species: hepatitis C virus
C;Date: 20-Feb-1995 #sequence_revision 19-Apr-1996 #text_change 17-Nov-2000
C;Accession: S21471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Note: the authors translated the codon ATA for residues 93 and 249 as Met C;Superfamily: hepatitis C virus genome polyprotein C;Keywords: envelope protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A.Cross-references: EMBL:X65924; NID:959466; PIDN:CAA46717.1; PID:959467
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: capsid protein; envelope protein; glycoprotein; polyprotein
                                                                                                                                                                                                                                                                                F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;116-191/Product: envelope protein M *status predicted <EPM>
F;192-389/Product: major envelope protein E *status predicted <MEE>
F;390-729/Product: nonstructural protein NS1 *status predicted <NS1>
F;730-106/Product: nonstructural protein NS2 *status predicted <NS2>
F;1007-1615/Product: hepacityIrin *status predicted <NS3>
F;1230-1237/Region: nucleotide-binding motif A (P-loop)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 46; DB 1; Length 3011; 100.0%; Pred. No. 5.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97.8%; Score 45; DB 2; Length 369; 90.0%; Pred. No. 1.4; 1.4; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       o;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 45; DB 2
Pred. No. 1.6;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genome polyprotein - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     envelope protein - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Mogam, W.K.
submitted to the EMBL Data Library, April 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97.8%;
90.0%;
                                                                                                                                                                                                                                                   F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 90.0
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: genomic RNA A; Residues: 1-369 <MOG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: genomic RNA A; Residues: 1-415 <LIA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Reference number: S21471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
les 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Accession: S21471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S21471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
```

```
RESULT 15
$18031
genome polyprotein - hepatitis C virus (isolate JK2) (fragment)
N.Contains: core protein; envelope protein 1; nonstructural protein 2; NS1/E2 protein
C; Species: hepatitis C virus
A; Variety: isolate JK2
C; Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 17-Nov-2000
C; Accession: $18031
R; Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
Submitted to the EMBL Data Library, September 1991
A; Description: Sequence analysis of putative structural regions of Hepatitis C virus isc
A; Reference number: $18029
A; Residues: 1-782 <#Nose structural regions of Hepatitis C virus genome capside protein; envelope protein; glycoprotein; nonstructural
A; Residues: 1-782 <#Nose structural source: isolate JK2
C; Superfamily: hepatitis C virus genome polyprotein
F: 1-191/Product: core protein #status predicted <MATI>F: 192-383/Product: envelope protein #status predicted <MATI>F: 34-733/Product: nonstructural protein 2 (fragment) #status predicted <MATI>F: 734-782/Product: nonstructural protein 2 (fragment) #status predicted <MATI>F: 734-782/Product: nonstructural protein 2 (fragment) #status predicted <MATIP
A; Experimental source: isolate JK5
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; glycoprotein; nonstructural
F; 1-191/Product: core protein #status predicted <MATI>
F; 192-383/Product: envelope protein 1 #status predicted <MATI>
F; 384-733/Product: NSI/E2 protein #status predicted <MATI>
F; 734-782/Product: nonstructural protein 2 (fragment) #status predicted <MATI>
                                                                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ó;
                                                                                                                                                                                                                                                                                                                                                                                           ő
                                                                                                                                                                                                                                                                                                     Score 45; DB 2; Length 782;
Pred. No. 2.6;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2; Length 782;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 45; DB 2;
Pred. No. 2.6;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search completed: August 23, 2002, 09:56:43 Job time: 133 sec
                                                                                                                                                                                                                                                                                                                   97.8%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97.8%;
90.0%;
                                                                                                                                                                                                                                                                                                                Query Match 97.8
Best Local Similarity 90.0
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
```

THIS PAGE BLANK USPTO)

```
GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

August 23, 2002, 09:55:17; Search time 37 Seconds (without alignments) 10.465 Million cell updates/sec Run on:

US-08-854-825-2 46 1 LLALLSCLTV 10 Title: Perfect score: Sequence: BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

105224 segs, 38719550 residues Searched:

105224 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_40:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		о¥Р	٠		SUMMARIES		
Result No.	Score	Query Match	Length	DB	ID	iption	
1	46	100.0	192	-	POLG_HCVE1	954	
7	46	100.0		Н	POLG_HCVH7	Ø	O
m	46	100.0		П	POLG_HCVH8	956 hepatitis	υ
4	46	100.0		П	POLG_HCVTH	957 hepatitis	υ
S	46	100.0		-	POLG_HCV1		_
9	46	100.0		7	POLG_HCVH	958 h genome	_
7	45	97.8	513	7	POLG_HCVJ2	hepatitis	O
œ	45	97.8		٦	POLG_HCVJA		_
6	45	97.8		-	POLG_HCVJT	h genome	_
10	45	97.8		7	POLG_HCVTW	h genome	_
11		95.7		7	POLG_HCVJ5	hepatitis	υ
12	43	93.5		7	POLG_HCVJ7		۲,
13	43	93.5	3033	7	POLG_HCVJ8	P26661 h genome po	_
14	42	91.3		П	POLG_HCVBK	h genome	0
15	40	87.0		٦	CPA7_PAPSP	papio sp.	J
16	40	87.0		Н	CPA7_HUMAN		
11	40	87.0	m	-	POLG_HCVJ6		^
18	38	82.6		Н	CPAA_RABIT	ö	m
19	38	82.6		Н	CPAB_RABIT		10
20	37	80.4	82	Н	YBDJ_KLEPN	Q48414 klebsiella	
21	37	80.4	464	-	CPA6_HUMAN	homo	
22		78.3	494	-	CPAD_HUMAN	homo	
23		77.2	285	Н	T13B_HUMAN	homo	ď
24		76.1	308	Н	YRU3_CAEEL	caeno	
25		9	335	Н	CATB_BOVIN	P07688 bos taurus	
56	35	9	597	Н	Y267_ARCFU	O29972 archaeoglob	0
27		3	520		POLG_HCVH4		()
58		3	520		POLG_HCVHK	hepatitis	U
59		73.9	685	-	FHUB_SALTY		
30		Ή.	128	П	CYB_CROW	Q95776 crotalus vi	
31	33	Η.	323	7	1	-	7
32	33	. 71.7	395	Н	an'	6	٠
	33		472	-	PPB_ESCFE		æ

100.0%; Score 46; DB 1; Length 192; 100.0%; Pred. No. 0.24;

Query Match Best Local Similarity

Q9upq8 homo sapien Q99884 homo sapien P28573 rattus norv P16259 rattus norv P11533 gallus gall Q10952 caenorhabdi Q60274 methanococc O54757 tamias sibi O54758 tamias sibi O54759 tamias sibi Q54760 tamias sibi Q54759 tamias sibi	ALIGNMENTS T. 1 PULT	98E48BF4C335A84C CRC64;
HUMAN HUMAN RAT RAT CHICK CAEEL METJA TAMSI TAMSI TAMSI	ALIGNMENTS ALIGNMENTS PRT; 192 "Guence updat motation upd Matrix prot "ament; prot "ament; prot "co G., Choo "co G., Cho	E488F
YA94-HUMAN S6A7_HUMAN S6A7_RAT SCAN3_RAT DMD_CHICK YMP9_CAEEL YZ12_METJA ALMM_TAMSI ALST_TAMSI ALST_TAMSI ALST_TAMSI ALST_TAMSI	ALIGNMENTS To a sequence updat Last sequence updat Last annotation upd Tragment. Prody Nordanians are f flavivirus envelope 11,000 of Choo THE ENVELOPE CC COPROTEIN B. THE NUC A. COPROTEIN CORPORE A. COPROTEIN CORP THE CORPORE A. COPROTEIN CORP THE NUC A. COPP	
панананана	eated st see st an all first te EC. strang volving volving to the EC. THE ROTELL THE ROTELL titut. First the EC. The The EC. The The The EC. The The EC. The	2 W
538 637 637 821 3621 241 413 413	STANDARD; E el. 23, Created) el. 23, Last sequel: 40, Last anno contains: brotein E [5] positive-strand [6] 07; N.A. 09; PubMed=184656 nino F. Saracconino Flavivirus elope glycoprotein for to the flavivirus elope glycoprotein for elope glycoprotein; coat to license agint for elope glycoprotein; coat elope glycoprotein; elope glycoprotein	192 2031
71.7 71.7 71.7 71.7 71.7 71.7 69.6 69.6 69.6 69.6 69.6	STA (Rel. (192 192 AA;
	HIGNMENTS HCVEI POLG_HCVEI POLG_1992 (Rel. 23, Last sequence update denome polyprotein [Contact annotation update denome polyprotein [Contact annotation] NCBL_TaxID=11107; Hepatitis C virus (isolate ECI) (HCV). NCBL_TaxID=11107; SEQUENCE FROM N.A. MEDILINE=91112009; PubMed=1846505; MEDILINE=91112009; PubMed=1846505; Han J.H.; Brauer M.J. Rosenblatt J., Fortain annotation and this statement is not removed the European Bioinformatics Institute of Bioinformatics by non-profit institutions as long modified an email to license agreement (Secont Send annotation and this statement is not removed the send and this statement is not removed the send and this statement is not remo	
8883333334 48334444444444 643374444444444444444444444	RESULT 1 POLG_HOVE1 1D POLG_HOVE1 DT 01-AUG-1 DT 01-AUG-1 DT 01-AUG-1 DT 01-AUG-1 DT 01-AUG-1 DE Genome policitico CV VICUSES; OC VICUSES;	NON_TER SEQUENCE
	R R R R R R R R R R R R R R R R R R R	SO

```
RESULT 3
POLG_HCVH8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                  δ
                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licenseélsb-sib.ch).
ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSIJEZ (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                  of HCV
                                                                                                                       01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 24), Last annotation update)
Genome polyprotein [Contains: Matrix protein (Envelope protein Mirk Protein (Envelope Protein Mirk Genome polyprotein (Envelope Protein Mirk Genome Contains: Marxix protein (Envelope Protein Mirk Genome Contains: Mirk Genome Mirk (Reagment).
                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                   Han J.H.;
"Variable and hypervariable domains are found in the regions of HC corresponding to the flavivirus envelope and NSI proteins and the pestivirus envelope gycoproteins.";
Virology 180:842-848(1991).
                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE-91112009; Pubmed-1846505;
Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J.,
Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 46; DB 1; Length 309; 100.0%; Pred. No. 0.36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01560; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6E858E9C3D0B9EA9 CRC64;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                    309 AA.
 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nonstructural protein.
                                                                                                     PRT;
.;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL, x53133; CAA37293.1; -.
InterPro; IPR002531; HCV_COTE.
InterPro; IPR002521; HCV_COTE.
InterPro; IPR002519; HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32922 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01542; HCV_core; 1. Pfam; PF01539; HCV_env; 1.
Conservative
                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
255
>309
                     1 LLALLSCLTV 10
                                  309 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID-11109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transmembrane; NON_TER 1
10;
                                                                                                                                                                                                          Hepacivirus
                                                                                                    POLG_HCVH7
P27955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NON_TER
                                             62
                                                                                         POLG_HCVH7
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                             g
                      ò
                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NOSTRUCTURAL PROTEIN NSI/EZ (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                             "Variable and hypervariable domains are found in the regions of HCV corresponding to the flavivirus envelope and NS1 proteins and the pestivirus envelope glycoproteins."; Virology 180:842-848(1991).
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY PLOPERIN ENVELOPE. THE ENVELOPE CONSIGNS OF TWO PROTEINS: PROTEIN MAND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                    01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Matrix protein (Envelope protein M);
Major envelope protein E; Nonstructural protein NS1] (Fragment).
Hepatitis C virus (isolate HCT18) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 46; DB 1; Length 321; 100.0%; Pred. No. 0.38;
                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
MEDLINE-21112009; PubMed-1846505;
Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung
Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2F5DE79F7C7845C8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
321 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   321 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nonstructural protein.
     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X53131; CAA37291.1; -.
InterPro; IPR002531; HCV_Core.
InterPro; IPR002521; HCV_Core.
InterPro; IPR002519; HCV_env.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_env; 1.
Pfam; PF01550; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                     (Rel. 23, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
307
314
321
34238 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10; Conservative
STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     76
267
>321
80
93
118
118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    314
321
321 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best_Local Similarity
Matches 10; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=11110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transmembrane;
                                                  01-AUG-1992
                                                                                                                                                                                                                         Hepacivirus
POLG_HCVH8
P27956;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POLG_HCVTH
                                                                                                                                                                                                                                                                                                                                                                                                Han J.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON_TER
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 4
POLG_HCVTH
ID POLG_H
```

```
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  interPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; Pfam; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam;
 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                    entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                           K
                   01-AUG-1992 (Rel. 23, Last sequence update)
16-CCT-2001 (Rel. 40, Last annotation update)
66-OCT-2001 (Rel. 40, Last annotation update)
Major envelope protein E; Monstructural protein (Snyl) (Fragment).
Hepatitis C virus (isolate TH) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae,
                                                                                                                                                                                                 pestivirus envelope glycoproteins.";
Virology 180:842-848(1991).
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY
                                                                                                                                                                                                                                  LIPOPROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED (GLCNAC. ..) (POTENTIAL).
                                                                                                                                                                            "Variable and hypervariable domains are found in the regions of HC corresponding to the flavivirus envelope and NS1 proteins and the
                                                                                                                    SEQUENCE FROM N.A. MEDLINE=91112009; PubMed=1846505; Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J., Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 46; DB 1; Length 321; Pred. No. 0.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          321
34074 MW; B2EB83F521C3B520 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transmembrane; Nonstructural protein.
                                                                                                                                                                                                                                                                                                                                                                  EMBL, X53134; CAA37294.1; -.
InterPro; IPR002531; HCV_NS1.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
Pfam; PF01542; HCV_env.
Pfam; PF01539; HCV_env. 1.
Pfam; PF01560; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
ProDom; P0186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%;
ilarity 100.0%;
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                         PROTEIN C AND MRNA.
         01-AUG-1992 (Rel. 23, 01-AUG-1992 (Rel. 23, 16-OCT-2001 (Rel. 40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1111111111
62 LLALLSCLTV 71
                                                                                               NCBI_TaxID=11117;
                                                                                      Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLG_HCV1
P26664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POLG_HCV1
ID POLG_
AC P2666
DT 01-AU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
```

```
between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its was by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   **X MEDLINE=91172875; PubMed=1848704;

**A MEDLINE=91172875; PubMed=1848704;

**Choo Q.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C.,

**Choo Q.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C.,

**A Gallegos C., Coit D., Medina-Selby A., Barr P.J., Weiner A.J.,

**A Bradley D.W., Kuo G., Houghton M.;

**Bradley D.W., Kuo G., Houghton M.;

**Genetic organization and diversity of the hepatitis C virus.";

**Proc. Natl. Acad. Sci. U. S.A. 88:2451-2455(1991).

**Proc. Natl. Acad. Sci. U. S.A. 88:2451-2455(1991).

**I. FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

**NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

**NS3 AND NS5 MAY PLAY A ROLL IN THE VIRAL RNA REPLICATION.

**C. -!- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 precursor polyprotein.

**C. -!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NICLEORAPSID COVERED BY A
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22); Genelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2 (GP68) (GP70) (GR12) (GP51); Envelope glycoprotein E2 (GP68) (GP70) (MS1); Protease/helicase NS3 (P70) (Hepacivirin) (EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin) (EC 3.4.21.98); Nonstructural protein NS48 (P47); Nonstructural protein NS58 (P56); Nonstructural protein NS58 (P56); Nonstructural protein NS58 (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)]. Hepatitis C virus (1solate 1) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00998; HCV_RGRP; 1.
Probom; PD186062; HCV_NS1; 1.
SMARY; SM00492; HELICG3; 1.
POLYPOTEALN; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | IPR002531; HCV_NS1.
| IPR004109 HCV_NS2.
| IPR0040518; HCV_NS3.
| IPR000745; HCV_NS43.
| IPR001490; HCV_NS43.
| IPR002868; HCV_NS53.
| IPR002166; HCV_RGRP.
| IPR002522; HCV_COPE.
| IPR002521; HCV_COPE.
| IPR002519; HCV_COPE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M62321; AAA45676.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_NS2; 1
HCV_NS3; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCV_core;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF01001; HCV_NS4b;
Pfam; PF01506; HCV_NS5a;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; A39166; GNWVC3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSSP; P27958; 1HEI.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=11104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF01560; PF01538; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF02907; PF01006; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF01539;
```

```
Debog_CLCVH STANDARD; PRT; 3011 AA.

Debog_CLCVH STANDARD; PRT; 3011 AA.

Orange polygone and state sequence update)

To 1-AUG-1992 (Rel. 23, Last sequence update)

To 1-AUG-1992 (Rel. 24). Last annotation update)

To 1-AUG-1992 (Rel. 40, Last annotation update)

To 1-AUG-1992 (Rel. 53, Last sequence update)

To 1-AUG-1992 (Rel. 40, Last annotation update)

To 1-AUG-1992 (Rel. 40, Last annotation update)

To 1-AUG-1992 (Rel. 40, Last annotation update)

E Geome polyprotein [Contains: Capsid protein C (Core protein NS2 (PS2);

To 1-AUG-1992 (RNS); Protein Protein NS4 (PS2); Nonstructural protein NS4 (PS2); Nonstructural protein NS4 (PS2); Nonstructural protein NS5 (PS2); Nonstructural 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                  MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Prince \tilde{A},M,\,; "Genomic structure of the human prototype strain H of hepatitis C
                                                                                                                                                                                                                                                                                SIMILARITY).
                                                                                                                                                                                                                                                            SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-92052256; PubMed-1658800;
Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasoff M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 46; DB 1; Length 3011; 100.0%; Pred. No. 2.6;
  PROTEIN C
                                          CAPSID PROTEIN C (POTENTIAL). MATRIX PROTEIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                (POTENTIAL)
                                                                                                                                                                                                                                                       CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
ATP (POTENTIAL).
                        CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                     N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                        POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      327197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=11108;
                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                               CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                   CHAIN
                                                                                                                                                                         CHAIN
                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLG_HCVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                      C. I- FUNCTION, NSSA SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.

C. I- FUNCTION: NSSA SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.

C. I- FUNCTION: NSSB IS A RNA-DEPENDENT RNA POLYMERASE THAT PLAYS AN ESSENTIAL ROLE IN THE VIRUS REPLICATION.

C. I- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pl and Ser or Ala in Pl'.

C. I- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN BUVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: E1 CHOPROTEIN BUVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: E1 CHOPROTEIN ENVELOPES THE HOST SIGNAL PEPTIDASES.

C. I- PTM: THE STRUCTURAL PROTEINS C, E1 AND E2 ARE PRODUCED BY PROTEOLYTIC PROCESSING BY THE HOST SIGNAL PEPTIDASE FAMILY C18.

C. I- SIMILARITY: THE NS3 PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                              oligonucleotide: the crystal structure provides insights into the mode
                                                                                             Weber P.C.;
                                                                                                                                                                                                                                                                                                                    -!- FUNCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.
-!- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF NS3-NS4A, NS4A-NS4B, NS4B-NS5A AND NS3-NS5B.
-!- FUNCTION: NS4A FORMS A COMPLEX WITH NS3 AND IS ESSENTIAL FOR THE
                                                                                                                                                                                      MEDLINE-98154321; PubMed-9493270;
Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A.,
Murcko M.A., Lin C., Caron P.R., "Hepatitis C virus NS3 RNA helicase domain with a bound
                                                  X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657.
MEDLINE-97331322; PubMed-9187654;
Xao N., Hesson T., Cable M., Hong Z., Kwong A.D., Le H.V., Maro N., Heb hepatitis C virus RNA helicase domain.";
Nat. Struct. Biol. 4:463-467(1997).
virus: comparison with American and Japanese isolates.";
Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991).
                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV_capsid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR002519; HCV_env.
IPR001650; Helicase_C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HCV_NS5a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS4b.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M67463; AAA45534.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HCV_NS5a; 1.
HCV_RdRP; 1.
helicase_C; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV_NS4a;
HCV_NS4b;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HCV_core;
HCV_env; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HCV_NS2; 1
HCV_NS3; 1
                                                                                                                                                                                                                                                                                                   Structure 6:89-100(1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HCV_NS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Interpro; IPR001490; H
Interpro; IPR002868; H
Interpro; IPR002166; H
Interpro; IPR002522; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; A36814; GNWVCH.
PDB; 1HEI; 25-NOV-98.
PDB; 1A1V; 16-FEB-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002521;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR002519;
InterPro; IPR001650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEROPS; $29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                   of unwinding.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF01006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam;
```

```
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                INIT_MET
                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLG_HCVJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó:
                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP38); Envelope glycoprotein E2
(GP68) (GP70) (Ns)] (Fragment).
Hepatitis C vitus (isolate HC-J2) (HCV).
       SMART; SM00492; HELICC3; 1.
Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus (isolate HC-J2) (HCV).
Viruses: ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                    REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIINE-92230232; PubMed-1314459; Okamoto K., Lizuka H., Okamoto H., Kurai K., Okada S.I., Yamamoto K., Lizuka H., Tanaka T., Fukuda S., Tsuda F., Mishiro S.; "Full-length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct
                                  Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                   RELAY SYSTEM (BY SIMILARITY).
RELAY SYSTEM (BY SIMILARITY).
RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 46; DB 1; Length 3011; 100.0%; Pred. No. 2.6;
                                                                                                                                  NS4B.
NS5A.
                                                                                                                                                                                                                                                                                                                                            -LINKED (GLCNAC. . .) (POTI)
                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                            NONSTRUCTURAL PROTEIN NS4A.
                                                                                                          NONSTRUCTURAL PROTEIN NS2
                                                                              ENVELOPE GLYCOPROTEIN EL. ENVELOPE GLYCOPROTEIN E2.
                                                              CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                    (GLCNAC. . .)
                                                                                                                                                                                                                                                     (GLCNAC. . .)
                                                                                                                                                                                                                                                                (GLCNAC. . .)
                                                                                                                                                                                                                                                                       (GLCNAC. . .)
                                                                                                                                                                                                                                                                                         (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                (GLCNAC. . .)
                                                                                                                                 NONSTRUCTURAL PROTEIN
NONSTRUCTURAL PROTEIN
NONSTRUCTURAL PROTEIN
                                                                                                                 PROTEASE/HELICASE NS3
                                                                                                                                                                                                                                                                                (GLCNAC. . .
                                                                                                                                                                                                                            (GLCNAC. .
                                                                                                                                                                                                                                                                                                                   (GLCNAC. .
                                                                                                                                                                                                                  N-LINKED (GLCNAC. N-LINKED (GLCNAC.
                                                                      CAPSID PROTEIN C.
                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                               ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                             (GICNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 513 AA
                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                  PROTEIN P7
                                                                                                                                                            POTENTIAL.
                                                                                                                                                                                                                                    N-LINKED
N-LINKED
                                                                                                                                                                                                                                                            N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                      CHARGE
                                                                                                                                                                               CHARGE
                                                                                                                                                                                        CHARGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                      327142 MW;
                                                                                                                                                                                                                                                                                                                                                                                                  0;
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                  1972
                                                                                                                                                            369
1083
1107
1165
11337
1319
                                                                                                                                                                                                                                                                                                                                             645
                                                                                                                                                                                                                                                                                                                                                      AA;
                                                                                                                                                                                                                                                                                                                                                                                                                              178 LLALLSCLTV 187
                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
nes 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                    1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=11111;
                                            3D-structure,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genotypes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLG_HCVJ2
P27959;
                                                                                                                                                            TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                             CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                            CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                    INIT_MET
                                                                                                                                  CHAIN
                                                                              CHAIN
                                                                                                CHAIN
                                                                                                         CHAIN
                                                                                                                 CHAIN
                                                                      CHAIN
                                                                                        CHAIN
                                                                                                                           CHAIN
                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                          Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVJ2
                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-CGT-2010 (Rel. 40, Last annotation update)
16-CGT-2010 (Rel. 40, Last annotation update)
6Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
6DN-80 (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3. 4.22.-); Proteass/helicase NS3 (P70) (Hepaclytin)
(EC 3. 4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
VIROLOGY 188:331-341(1992).

-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION. NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MAJOR ENVELOPE PROTEIN E (POTENTIAL). NONSTRUCTURAL PROTEIN NS1 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01560; HCV_NS1; 1.
Probom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein; Transmembrane; Nonstructural protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 45; DB 1; Length 513; Pred. No. 0.84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            943F31E3514CDEF3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
(GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; D10074; BAA00968.1; -.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR00251; HCV_core.
InterPro; IPR00251; HCV_core.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_capsid; 1.
Pfam; PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97.8%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         513 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POLG_HCVJA
P26662;
```

ဖ

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                       MEDLINE-91192160; PubMed-1849488;
MEDLINE-91192160; PubMed-1849488;
MEDLINE-91192160; PubMed-1849488;
MEDLINE-91192160; PubMed-1849488;
MEDLINE-91192160; PubMed-1849488;
MEDLINE-91192160; PubMed-1849491;
MOJECULAR STATUTUR OF the Japanese hepatitis C viral genome.";
FEBS Lett. 280:325-328(1991).
I-FEBS Lett. 280:325-328(1991).
I-FEBS Lett. 280:325-328(1991).
MAY PLAY A ROLE IN THE VIRAL RNA RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA RELATED FUNCTION.
C-I-CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pl and Ser or Ala in Pl'.
C-I-SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPACTEIN MAND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Gore protein; Coat protein; Envelope protein; Helicase; AFP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease. INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
Hepatitis C virus (isolate Japanese) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                       SEQUENCE FROM N.A.
MEDLINE=91088550; PubMed=2175903;
Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi S., Sugimura T., Shimotohno K.;
Woldecular cloning of the human hepatitis C virus genome from Japanese patients with non-A, non-B hepatitis.",
Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                    -i - SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001410; DEAD.
InterPro; IPR002331; HCV_NS1.
InterPro; IPR002531; HCV_NS2.
InterPro; IPR004109; HCV_NS3.
InterPro; IPR00045; HCV_NS4.
InterPro; IPR00149; HCV_NS4b.
InterPro; IPR002166; HCV_NS4b.
InterPro; IPR002166; HCV_NS4b.
InterPro; IPR002161; HCV_NS4b.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002531; HCV_env.
InterPro; IPR00259; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_capsid; 1. Pfam; PF01559; HCV_care; 1. Pfam; PF01550; HCV_NS1; 1. Pfam; PF01550; HCV_NS2; 1. Pfam; PF02907; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF01006; HCV_NS4a; 1.
Pfam; PF01001; HCV_NS4b; 1.
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00999; HCV_RRRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; D90208; BAA14233.1; -. PIR; A39253; GNWVCJ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART; SM00492; HELICC3;
                                                                                                                                                                                             DISCUSSION OF SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP; P26663; LJXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                             NCBI_TaxID=11116;
```

```
0;
            CAPEID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A, (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B, (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B, (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7: Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protesse/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P65) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.748)].
Hepatitis C virus (isolate HC-JT) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE=92295714; PubMed=1318627;
Tanaka T., Kato N., Nakagawa M., Ootsuyama Y., Cho M.J.,
Nakazawa T., Hijikata M., Ishimura Y., Shimotohno K.;
"Molecular cloning of hepatitis C virus genome from a single Japanese carrier: sequence variation within the same individual among infected individuals.";
Virus Res. 23:39-53(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                              (BY
(BY
CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA993794F46DB185
                                                                                                                                                                                                                                                                                                             CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
(GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                       ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rred. No. 3.9;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT; 3010 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 45; L
Pred. No. 3.
                                                                                                                                                                                                                                                                                        POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       327017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                  1615
1862
2013
3010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepacivirus.
NCBI_TaxID=31642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POLG_HCVJT
Q00269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                            ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                        PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 9
POLG_HCVJT
                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COTE PROTEIN; COAT PROTEIN; HEALOUSE; NAM DITECTOR AND PUT PLOID OF PROTEIN; HEALOUSE; NAM DITECTOR AND PUT PLOID OF PROTEIN; HEALOUSE; SETIME PROTEIN OF THE TEALSHMENDED; NONSTRUCTURAR AMINOPERTIDASE.

CHAIN 115 CAPSID PROTEIN C (POTENTIAL).

CHAIN 192 MATRIX PROTEIN (POTENTIAL).

CHAIN 194 384 729 NONSTRUCTURAL PROTEIN NS1/62 (POTENTIAL).

CHAIN 106 NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).

CHAIN 1616 1862 NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).

CHAIN 1616 1863 2013 NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).

CHAIN 2014 3010 PRADEIN SAS (POTENTIAL).

CHAIN 2014 3010 NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).

CHAIN 2014 3010 PRADEIN NA9 (POTENTIAL).

CHAIN 2014 3010 PRADEIN NA POLYMERASE (POTENTIAL).

PRADEIN 2014 3010 PRADEIN NA POLYMERASE (POTENTIAL).
FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

CATALYTIC ACTIVITY: HYDROLYSIS OF four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.

SUBBURT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:

PROTEIN M AND GLYCOPROFIEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN CAND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC. . .) (POTENTIAL) (GLCNAC. . .) (POTENTIAL)
                                                                                                                                                                                  SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR000745; HCV_NS4a.
InterPro; IPR001490; HCV_NS4b.
InterPro; IPR0012869; HCV_NS5a.
InterPro; IPR002166; HCV_RGAP.
InterPro; IPR002522; HCV_Capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pram; Pr01543; HCV_capsid; 1. Pram; Pr01543; HCV_capsid; 1. Pram; Pr01542; HCV_capsid; 1. Pram; Pr01542; HCV_carv; 1. Pram; Pr01556; HCV_MS1; 1. Pram; Pr01566; HCV_MS2; 1. Pram; Pr01006; HCV_MS3; 1. Pram; Pr01001; HCV_MS4; 1. Pram; Pr01001; HCV_MS4; 1. Pram; Pr01506; HCV_MS5a; 1. Pram; Pr01506; HCV_MS5a; 1. Pram; Pr01506; HCV_MS5a; 1. ProDom; P01506; HCV_MS5a; 1. ProDom; P01506; HCV_MS5a; 1. ProDom; P01506; HCV_MS2a; 1. ProDom; P01506; HCV_MS2a; 1. ProDom; P01506; HCV_MS1a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV_NS1.
HCV_NS2.
HCV_NS3.
                                                                                                                                                                                                                                                                                                                                                                 EMBL; D11168; BAA01943.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       369
1083
1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1165
1237
1319
196
209
234
                                                                                                                                                                                                                                                                                                                                                                                  PIR; A45573; A45573.
HSSP; P26663; 1JXP.
*MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1316
196
209
234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 26, Last sequence update)
16-OGT-2010 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Bnvelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3. 4.22.-); Proteases/Helicase NS3 (P70) (Hepacivirin)
(EC 3. 4.22.-); Nonstructural protein NS4A (P4); Nonstructural protein NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Taiwan) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.
SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C. AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                    (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                            (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                 POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                             POTENTIAL)
                                                                                     POTENTIAL)
                                                                                                            POTENTIAL)
                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                             Score 45; DB 1; Length 3010;
Pred. No. 3.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                     94A1C77435D642BB
                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                              (GLCNAC.
                                                                                                                                                                                           (GLCNAC.
                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                      (GLCNAC.
                                                               GLCNAC
                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Mismatches
                                                             N-LINKED
N-L
                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                      N-LINKED
                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                     326573 MW:
                                                                                                                                                                                                                                                                                                                                                                                                                                97.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                    645
2041
2077
                                                                                                                                                                                                                                                                                                   2240
2529
2788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178 LLALLSCLTI 187
                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=31645;
250
305
305
4417
4423
4430
540
540
556
623
623
2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POLG_HCVTW
                    CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                            CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                    CARBOHYD
                                                                 CARBOHYD
                                                                                   CARBOHYD
                                                                                                            CARBOHYD
                                                                                                                              CARBOHYD
                                                                                                                                                   CARBOHYD
                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P29846;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POLG_HCVTW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  +---
ōλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pp
```

```
Length 3010;
                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nonstructural protein.
                    97.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; D10075; BAA00969.1; -.
                                                            Conservative
                                                                                                                                                                                                                                         STANDARD;
                    Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                       178 LLALLSCLTI 187
                                                                                               1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=11112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fransmembrane;
                                                                                                                                                                                                                                         POLG_HCVJ5
P27960;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INIT_MET
                                                                                                                                                                                               RESULT 11
POLG_HCVJ5
                                                                                                    ò
                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
Core protein; Goat protein; Envelope protein; Helicase; ATP-binding;
Transmembrane; Nonstructural protein; Helicase; Serine protease.

INIT_MET 1 CELLULAR AMINOPEDTIDASE.
CHAIN 116 191 MATRIX PROTEIN (POTENTIAL).
CHAIN 192 383 MAJOR ENVELOPE PROTEIN E (POTENTIAL).
CHAIN 730 1006 NONSTRUCTURAL PROTEIN NS1/F2 (POTENTIAL).
CHAIN 1007 1615 PROTEIN SAN (POTENTIAL).
CHAIN 1616 1862 NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
CHAIN 1616 1862 NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
CHAIN 1616 1862 NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INKED (GLCNAC. . . . AAD267D55CDFE215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED (GLCNAC
N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATP (POTENTIAL)
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                      InterPro; IPR004109; HCV_NS3.
InterPro; IPR000745; HCV_NS4a.
InterPro; IPR001409; HCV_NS4b.
InterPro; IPR002166; HCV_NS5b.
InterPro; IPR002152; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR001509; Helicase_C.
                EMBL; M84754; -; NOT_ANNOTATED_CDS.
PIR; A40244; GNWVTW.
                                                                                                                                                                                                                                                                                                                                               Interval, irraverval, pram. Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_capsid; 1. Pfam; PF01539; HCV_env; 1. Pfam; PF01539; HCV_env; 1. Pfam; PF02907; HCV_NS2; 1. Pfam; PF02007; HCV_NS4; 1. Pfam; PF01006; HCV_NS4a; 1. Pfam; PF01006; HCV_NS4a; 1. PF01001; HCV_NS4a; H
                                                                                                                                     HCV_NS1.
HCV_NS2.
HCV_NS3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00998; HCV_RRRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 327047
                                                                                                                  InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                          InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA;
                                                      HSSP; P26663; 1JX
MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01560; H
Pfam; PF01530; H
Pfam; PF02907; H
Pfam; PF01006; H
Pfam; PF01001; H
Pfam; PF01506; H
Pfam; PF0999; H
Pfam; PF09999; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSJ/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
                                                                                                                                                                                                               01-A0G-1992 (Rel. 23, Created)
01-A0G-1992 (Rel. 23, Last sequence update)
01-A0G-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein); Matrix protein (Envelope protein M); Major envelope protein E; Nonstructural proteins NS1 and NS2] (Fragment).
Hepatitis C virus (isolate HC-J5) (HCV).
Viruses; ssRAM positive-strand viruses, no DNA stage; Flaviviridae;
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genotypes.";
Virology 188:331-341(1992).
-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE
- FUNCTION: THE SMALL PROTEING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY.
LIPOPROTEIN MAND GLYCOPROTEIN E. THE BUVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C. AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-92230232; PubMed-1314459; Okamonto K., Lizuka H., Okamoto H., Kurai K., Okada S.I., Yamamoto K., Lizuka H., Tanaka T., Fukuda S., Tsuda F., Mishiro S.; "Full-length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC. .) (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REMOVED FROM CAPSID PROTEIN C BY CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR002531; HCV_capsid.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002512; HCV_capsid.
InterPro; IPR002513; HCV_core.
InterPro; IPR002519; HCV_core.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01549; HCV_core; 1.
Pfam; PF01550; HCV_core; 1.
Pfam; PF01560; HCV_core; 1.
ProDom; PF01660; HCV_NS1; 1.
ProDom; Pf01660; HCV_NS1; 1.
0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
```

σ

```
CHAIN
                                                                                                                                                                                                                                                                                                                                                                     POLG_HCVJ8
                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                       ö
                                                                                                                                                                                                                                                               01-AUG-1992 (Rel. 23, Last aguence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein); Matrix
protein (Envelope protein M); Major envelope protein E; Nonstructural
proteins NS1 and NS2] (Fragment).
Hepatitis C virus (isolate HC-J7) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDLINE-92230232; PubMed=1314459;
MEDLINE-92230232; PubMed=1314459;
Medancto H., Kurai K., Okada S.I., Yamamoto K., Lizuka H.,
Tanaka T., Fukuda S., Tanaka F., Mishiro S.,
"Full-length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct
        (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                             (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                        (POTENTIAL)
                                                                                                                                                        ó
                                                                                                                                   Score 44; DB 1; Length 737;
Pred. No. 1.7;
; Mismatches 0; Indels
                                                                                                          3AF699D82AD501B1 CRC64;
                                   (GLCNAC...)
(GLCNAC...)
(GLCNAC...)
                                                             (GLCNAC. . .)
                                                                       (GLCNAC.
          GLCNAC.
                         GLCNAC.
                  GLCNAC.
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002531; HCV_NS1.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_core.
Pfam; PP01543; HCV_capsid; 1.
Pfam; PP01542; HCV_core; 1.
Pfam; PP01539; HCV_core; 1.
                                                                                                                                                                                                                                                        01-AUG-1992 (Rel. 23, Created)
                                                                                                           ΜM.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF01560; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                     95.7%;
90.0%;
                                                                                                 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; D10077; BAA00971.1;
                                                                                                                                                       Conservative
                                                                                                                                                                                                                                        STANDARD;
                                                                                                                            Query Match
Best Local Similarity
417
423
423
448
447
477
477
534
558
578
578
737
737 AA;
                                                                                                                                                                                 178 LLALLSCITV 187
                                                                                                                                                                        LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=11114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01560
                                                                                                                                                                                                                                                                                                                                 Hepacivirus
                                                                                                                                                                                                                                       POLG_HCVJ7
P27961;
                                           CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                       CARBOHYD
NON_TER
SEQUENCE
       CARBOHYD
CARBOHYD
                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                      RESULT 12
                                                                                                                                                                                                                             POLG_HCVJ7
qq
```

```
UCUGA-INCO.

COLG. HGC/1902 (Rel. 23, Created)

TO 1-40G-1992 (Rel. 23, Last sequence update)

TO 1-40G-1992 (Rel. 23, Last sequence update)

TO 1-40G-1992 (Rel. 23, Last sequence update)

TO 1-40G-1992 (Rel. 24, Last annotation update)

TO 1-40G-1992 (Rel. 40, Last annotation update)

TO 1-40G-1992 (Rel. 23, Last sequence update)

TO 1-40G-1992 (Rel. 40, Last annotation update)

TO 1-40G-1992 (Rel. 40, Last annotation update)

TO 1-40G-1992 (Rel. 40, Last annotation update)

Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2

ENC 3.4.22.-3; Protease/helicase NS3 (P70) (Hepacivirin)

ENC 3.4.21.99); Nonstructural protein NS5 (P86); Nonstructural protein

NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].

Hepatitis c virus (isolate HC-J8) (HCV).

CHEPACIVIUS (ISOLATE HC-J8) (HCV).
                                                                  CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/EZ (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/EZ (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VICTOLOGY 188:331-341(1992).

-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBITC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

-!- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprocein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.

-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=92230232; PubMed=1314459; Okada S.-I., Yamamoto K., Lizuka H., Tanaka T., Fukuda S., Tsuda F., Mishiro S., Stitis Tsuda F., Mishiro S.; Tsuda F., Mishiro S.; Fukuda S., Tsuda F., Mishiro S.; Isuda F., Mishiro S.; Isuda F., Mishiro S.; Isuda F., Mishiro S.; Isuda Genome having poor homology to reported isolates: comparative study of four distinct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                        (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 43; DB 1; Length 737; Pred. No. 2.6;
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67DFAE11854122F2 CRC64;
                                                                                                                                                                                                                                                                N-LINKED GLCNAC.
                                                                                                                                                                                                                  POTENTIAL.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
ΜΣ
                         Nonstructural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            93.5%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                737
81691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178 LLALLSCVTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11115;
                       Transmembrane;
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genotypes.
                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                    CHAIN
                                                                                                                        CHAIN
                                                                                                                                               CHAIN
```

```
q
                                                                                                                                                                                                                                                                               ò
                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ib-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Core protein; Cost protein; Envelope protein; Helicase; AFP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

INIT_MET 1 18 REMOVED FROM CAPSID PROTEIN C BY THE CELLULAR ANINOPERTIDASE.

CHAIN 192 383 MATRIX PROTEIN (POTENTIAL).

CHAIN 194 383 MAJOR ENVELOPE PROTEIN E (POTENTIAL).

CHAIN 384 733 NONSTRUCTURAL PROTEIN NSI (POTENTIAL).

CHAIN 1010 NONSTRUCTURAL PROTEIN NSI (POTENTIAL).

CHAIN 1619 PROTEASE, HELICASE NSI (POTENTIAL).

CHAIN 1620 1866 NONSTRUCTURAL PROTEIN NSA (POTENTIAL).

CHAIN 1867 2017 NONSTRUCTURAL PROTEIN NSA (POTENTIAL).

CHAIN 2018 3033 RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
PROTEIN M AND GLYCOPROTEIN B. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C. AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                            SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
                                                                                                                                                                                                                      InterPro: IPR002531; HCV_NS1.
InterPro: IPR002531; HCV_NS1.
InterPro: IPR001409; HCV_NS3.
InterPro: IPR001409; HCV_NS3.
InterPro: IPR001490; HCV_NS4b.
InterPro: IPR002586; HCV_NS5a.
InterPro: IPR002522; HCV_CapSid.
InterPro: IPR002522; HCV_CapSid.
InterPro: IPR002521; HCV_CapSid.
InterPro: IPR002521; HCV_CapSid.
InterPro: IPR002521; HCV_CapSid.
InterPro: IPR001650; Helicase_C.
Pfam; PF01543; HCV_CapSid; 1.
Pfam; PF01543; HCV_CapSid; 1.
Pfam; PF01539; HCV_CapSid; 1.
Pfam; PF01539; HCV_CapSid; 1.
Pfam; PF01539; HCV_NS1; 1.
Pfam; PF01539; HCV_NS1; 1.
Pfam; PF01539; HCV_NS3; 1.
Pfam; PF01539; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00998; HCV_RdRP; 1.
Pfam; PF00271; helicase_C; 1.
                                                                                                                                                         EMBL; D10988; BAA01761.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProDom; PD186062; HCV_NS1;
                                                                                                                                                                                                              InterPro; IPR001410; DEAD.
InterPro; IPR002531; HCV_N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3033
369
369
1111
1116
124
1323
1365
299
299
299
305
417
423
                                                                                                                                                                  PIR; A40250; GNWVJ8.
HSSP; P27958; 1HEI.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total 1992 (Rel. 23, Created)

or 01-AUG-1992 (Rel. 23, Last sequence update)

or 01-AUG-1992 (Rel. 23, Last sequence update)

or 01-AUG-1992 (Rel. 23, Last sequence update)

or 01-AUG-1992 (Rel. 40, Last annotation (Rel. 40, Nonstructural protein NS (Rel. 42, Let))

or 01-AUG-1992 (Rel. 40, Nonstructural protein NSA (PS))

or 01-AUG-1992 (Rel. 40, Rel. 40, Nonstructural protein NSA (PS))

or 01-AUG-1992 (Rel. 40, Rel. 40, Nonstructural protein NSA (PS))

or 01-AUG-1992 (Rel. 40, Nonstructural protein NSA (PS))

or 01-AUG-1993 (Rel. 40, Nonstructural protein NSA (PS))

or 01-AUG-1993 (Rel. 40, Nonstructural protein NSA (PS))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS) OF 1027-1215.
MEDLINE-97015088; PubMed-8861916;
Love R.A., Parge H.E., Wickersham J.A., Hostomsky Z., Habuka N.,
Moomaw E.W., Adachi T., Hostomska Z.;
Hostomska I.;
Hostomska
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Takamizawa A., Mori C., Fuke I., Manabe S., Murakami S., Fujita J., Onishi E., Andoh T., Yoshida I., Okayama H.; "Structure and organization of the hepatitis C virus genome isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                    (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-96235224; PubMed-8647104;
Borowski P., Heiland M., Oehlmann K., Becker B., Korneteky L.;
"Non-structural protein 3 of hepatitis C virus inhibits
phosphorylation mediated by CAMP-dependent protein kinase.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 43; DB 1; Length 3033;
Pred. No. 8.7;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                        1A173E7E3381FD1A CRC64;
                                   N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eur. J. Biochem. 237:611-618(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=91140698; PubMed=1847440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from human carriers.";
J. Virol. 65:1105-1113(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93.5%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                        330177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
542
558
578
627
649
1091
2038
2359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 1487-1500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178 LLALLSCVTV 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=11105;
542
558
578
627
649
1091
2038
2359
2359
3033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POLG_HCVBK
                                        CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                               CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P26663;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
POLG_HCVBK
```

```
AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                        178 LLALLSCLT 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20 AA;
                                                                                                                                                                                                                                                                                          LLALLSCLT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                CPA7_PAPSP
P80055;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
SEQUENCE
 CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                             CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                             CARBOHYD
                                                                            CARBOHYD
                                                                                                                           CARBOHYD
                                      CARBOHYD
                                                   CARBOHYD
                                                                                      CARBOHYD
                                                                                                   CARBOHYD
                                                                                                               CARBOHYD
                                                                                                                                         CARBOHYD
                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                        RESULT 15
CPA7_PAPSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CYP2A7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     П
                                                                                                                                                                                                                                                                                          Н
                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                  Ω
   δλ
                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002521; HCV_capsid.

R InterPro; IPR002521; HCV_capsid.

R InterPro; IPR002521; HCV_capsid.

R InterPro; IPR001521; HCV_car.

R InterPro; IPR0016519; HCV_car.

R InterPro; IPR0016519; HCV_car.

R Pfam; PF01543; HCV_car; 1.

R Pfam; PF01543; HCV_NS1; 1.

R Pfam; PF01560; HCV_NS1; 1.

R Pfam; PF01001; HCV_NS3; 1.

R Pfam; PF01001; HCV_NS3; 1.

R Pfam; PF01006; HCV_NS3; 1.

R Pfam; PF01006; HCV_NS3; 1.

R Pfam; PF00998; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSJ/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.
SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIDOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN M AND GIYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                      SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ресн вох.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHARGE
                                                                                                                                                                                                                                                                                                                               HCV_NS2.
HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
HCV_NS5a.
                                                                                                                                                                                                                  EMBL; M58335; AAA72945.1; -.
                                                                                                                                                                                                                                                                                                       DEAD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       115
191
383
729
1006
1615
1862
2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    369
1083
1107
1165
1237
1319
209
234
250
                                                                                                                                                                                                                                                                                                    InterPro; IPR001410; D
InterPro; IPR002531; H
InterPro; IPR002518; H
InterPro; IPR004109; H
                                                                                                                                                                                                                                                                                                                                                      Interpro; IPR000745; H
Interpro; IPR001490; H
Interpro; IPR002868; H
Interpro; IPR002166; H
                                                                                                                                                                                                                                        PDB; 1A1Q; 25-MAR-98.
PDB; 1JXP; 14-JAN-98.
PDB; 1NS3; 08-APR-98.
                                                                                                                                                                                                                               GNWVTC
                                                                                                                                                                                                                                                                             MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1616
1863
2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     347
1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3D-structure.
INIT_MET
                                                                                                                                                                                                                               PIR; A38465;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dalet-Beluche I., Boulenc X., Fabre G., Maurel P., Bonfils C.;

The continuous of two cytochrome P450 isozymes related to CYP2A and reveal amilies from monkey (baboon, Papio papio) liver microsomes. Cross reactivity with human forms.";

Eur. J. Biochem. 204.641.648(1992).

Eur. J. Biochem. 204.641.648(1992).

- I- FUNCTION: EXHIBITS A HIGH COUMARIN 7-HYDROXILASE ACTIVITY.

- CATALYTIC ACTIVITY: RH + reduced flavoprotein + O(2) = ROH + OXIGIZED (LIVER LOCATION: Membrane-bound. Endoplasmic reticulum.)

- ISUBCELLUIAR LOCATION: Membrane-bound. Endoplasmic reticulum.

- INDUCTION: BY PHENOBARITAL.

- INDUCTION: BY PH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Papio sp. (Baboon).

Bukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
Cercopithecinae; Papio.

NCBI_TaxID=61183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAY-1992 (Rel. 22, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
Cytochrome P450 2A7 (Er 1.14.14.1) (CYPIIA7) (P450 FI) (Coumarin hydroxylase) (Fragment).
                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                      (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 40; DB 1; Length 20; Pred. No. 0.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             693102A1F0B50C96 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MW; F8422D5ECCFDFD9C
                                                                                                                                              GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 42; DB 1;
Pred. No. 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
N.LINKED
N.L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=92174920; PubMed=1541278;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91.3%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      87.0%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2045 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
```

Db 8 LVALLACLTV 17

Search completed: August 23, 2002, 09:55:19 Job time: 49 sec

Perfect score:

Sequence:

OM protein

Run on:

Scoring table:

Searched:

Minimum DB Maximum DB

Database

```
hepatitis
hepatitis
hepatitis
hepatitis
                                                                                hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN EI (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
STRAIN=1999;
MEDLINE=20407394; PubMed=10950762;
MEDLINE=20407394; PubMed=10950762;
MEDLINE=20407394 of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
-!- SIMILARITY: TO HERATITIS C VIRUS ENVELOPE GLYCOPROTEIN El.
EMBL; PF271877; AGG16213.1;
InterPro; IPR002519; HCV_env.
Pfam; PF01539; HCV_env; 1.
Coat protein; Envelope protein; Glycoprotein;
                                09e2n1
09e2n0
09e2n0
09e2m7
09e2m7
09e2m7
09e2m3
09e2l1
09e2l2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12981 MW; B482A3DCACB5A701 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 46; DB 12;
100.0%; Pred. No. 0.15;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALIGNMENTS
                0952N2
0952N0
0952N0
0952N0
0952N3
0952N3
0952N3
0952N2
0952N2
0952N2
0952N3
0952N3
0952N3
0952N3
0952N3
0952N3
0952N3
0952N3
0952N3
                                                                                                                                                                                                                                                                                                                                                                                09E2K8
09E2K7
09E2K6
09E2K5
09E2K4
09E2K3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
   10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
 121 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (FRAGMENT).
Hepatitis C virus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLALLSCLTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transmembrane.
NON_TER 121
SEQUENCE 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepacivirus
   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9E218
Q9E218;
 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9E2I8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (without alignments)
12.372 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hepatitis chepatitis c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hepatitis of hepat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09e2i8 hepatitis
09e218 hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                  Search time 139.83 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     009e2p8
009e2p8
009e2p7
009e2p7
009e2p1
009e2p0
009e2p0
009e2p0
009e2p0
              GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                          562222 seqs, 172994929 residues
                                                                                                                    ٠.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Maximum Match 100%
Listing first 45 summaries
                                                                                  sw model
                                                                                                                August 23, 2002, 10:21:58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9E218
Q9E2L8
Q9E2P8
Q9E2P7
Q9E2P5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9E2P4
Q9E2P3
Q9E2P2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9E2P1
Q9E2P0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9E2N9
Q9E2N8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             09E2N7
09E2N6
09E2N5
09E2N4
                                                                                                                                                                                                                                                      BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sp_invertebrate:*
sp_mammal:*
sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sp_virus:*
sp_vertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_rvirus:*
sp_bacteriap:*
                                                                                protein search, using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                              seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_plant:*
sp_rodent:*
                                                                                                                                                                                      US-08-854-825-2
46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sp_fungi:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPTREMBL_19:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
```

9: 10: 11: 13: 14:

Query

Result Š. 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0

ö

Gaps

```
LLALLSCLTV 10
                                                                                                                                                                                                                                                                                         Pransmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus
                                                                                                                                (FRAGMENT)
                                                                                                                                                                                                                                                                                               NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9E2P5
                                                                          Q9E2P7
                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                 09E2P7
           δ
                            qq
                                                                                   ô
                                    01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                              01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
-! SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1.
EMBL, AF271817; AAG16153.1;
InterPro: IPR002519; HCV_env.
Pfam; PF01539; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 46; DB 12; Length 137; llarity 100.0%; Pred. No. 0.17; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                             Length 131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                   BD767FEA1801F0A7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44615937EE303988 CRC64;
                                                                                                                                                                                                                                                                                               ;
;
                                                                                                                                                                                                                                                                            100.0%; Score 46; DB 12; 100.0%; Pred. No. 0.16;
                   131 AA.
                                                                                                                                                                                                                                                                                                                                                                                137 AA
                                                                                                                                                                                                                                                                                               0; Mismatches
                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                      STRAIN-2438;
MEDLINE-20407394; Pubmed-10950762;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-20407394; PubMed-10950762;
                                                                                                                                                                                                                                                  131 AA; 14042 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14780 MW;
                                   (TrEMBLrel. 16, C
(TrEMBLrel. 16, I
(TrEMBLrel. 19, I
                                                                                                                                                                                                                                                                                               10; Conservative
                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \begin{array}{c} 1 \\ 137 \end{array}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1
137
137 AA;
                                                                                                                                                                                                                                                                                       Best Local Similarity
                                                                                                                                                                                                                                                                                                                 1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                          1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches 10; Conserv
                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                               Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                   (FRAGMENT).
Hepatitis C virus.
                                                                                                         NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
                                                                                                                                                                                                                                 Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ransmembrane.
                                                                                                   Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-2388
                                                                         (FRAGMENT
                                                                                                                                                                                                                                          NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                   09E2L8
                                                                                                                                                                                                                                                                                                                                                                               Q9E2P8
~
                                                                                                                                                                                                                                                                                               Matches
RESULT
Q9E2L8
                                                                                                                                                                                                                                                                                                                                                              RESULT
```

```
01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DBC-2001 (TrEMBLrel. 16) Last sequence update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 16, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                     Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1.
EMBL; AF271818; AAG16154.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 46; DB 12; Length 137; Pred. No. 0.17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01539; HCV_env; 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8017992B8932346D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                       137 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=3462;
MEDLINE=20407394; Pubmed=10950762;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=1382;
MEDLINE=20407394; PubMed=10950762;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14734 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
ilarity 100.0%;
Conservative 0.
                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1
137 1
137 AA;
1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                            Hepatitis G virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
```

```
Conservative
                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                      1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 LLALLSCLTV 10
                                                                                                                                                           1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                        STRAIN=2440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9E2P1;
                                                                                                                                                                                                                                  Q9E2P2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9E2P1
                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                        Q9E2P2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9E2P1
  Qγ
                                                                                                                                                                              qq
                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AC DE DE OC OC OC OC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                              ö
                                                                                                                                                                             01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DBC-2001 (TrEMBLrel. 19, Last sequence update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GIXCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                             ó;
                                                                                                                                                                                                                                                                                                      MEDLINE-20407394; pubmed=10950762; Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.; Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.; "Genetic Epidemiology of Hepatitis C Virus throughout Egypt."; J. Infect. Dis. 182: 699-707(2000).
-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN EI. EMBL: AF271821; AAG16157.1; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-20407394; PubMed=10950762;
Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 46; DB 12; Length 137; Pred. No. 0.17;
                                         Length 137;
                                                                                                                                                                                                                                                                                                                                                                               Pfan, PF01539; HCV_env; I.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
         14745 MW; 12337C518D7EE54C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                     DAC465A55F2BA559 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
0
                                                             .
0
                                         DB 12;
                                                  0.17;
                                                                                                                                                           137 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    137 AA.
                                        100.0%; Score 46; DB
100.0%; Pred. No. 0.1
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                           137
14770 MW;
                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002519; HCV_env.
Pfam; PF01539; HCV_env; 1.
                                     Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                          137 1
137 AA;
137 1
137 AA;
                                                                                            1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                  1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis C virus
                                                                                                                                                                                                                                                                NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                        Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepacivirus
                                                                                                                                                                                                                        (FRAGMENT).
                                                                                                                                                                                                                                                                                                STRAIN=2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=2152
                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
SEQUENCE
 NON_TER
SEQUENCE
                                                                                                                                                        Q9E2P4
Q9E2P4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9E2P3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9E2P3
                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loc
Matches
                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                09E2P4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9E2P3
 FT
SQ
                                                                                  ò
                                                                                                                                                           ద
```

```
ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAY S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
-- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN El.
EMBL, AF271823; AAG16159.1;
-- InterPro: IPR002519; HCV_env.
Pfam; PF01539; HCV_env. 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E.I. SMALLS, ARATIS18.1; -. InterPro; IPPR022; AAG1518.1; -. Pfam: PF01539; HCV_env. 1.
                                                                                                                                                                                                                                                                                                                        Length 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 137;
                                                                                                              Coat protein; Envelope protein; Glycoprotein; Polyprotein; Transmembrane.

NON_TER 137 137 137 SEQUENCE 137 AA; 14837 MW; A6167F0F95FA5E9A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93EE1C864A85C8AA CRC64;
                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 46; DB 12; Best Local Similarity 100.0%; Pred. No. 0.17; Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 46; DB 12;
100.0%; Pred. No. 0.17;
live 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        137 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 137 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=20407394; PubMed=10950762;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          137 137
137 AA; 14888 MW;
```

```
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN EI (GP32) (GP35)]
                                  (FRAGMENT).
Hepatitis C virus.
Viruses: ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
                                                                                                                                                                                 MEDLINE-20407394; PubMed=10950762; Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.; "Genetic Epidemiology of Hepatitis C Virus throughout Egypt."; J. Infect. Dis. 182:598-707(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-0883;

MEDLINE-2040794; PubMed-10950762;

Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;

Ray S.C., Atthur R.R., Carella A., Bukh J., Thomas D.L.;

"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";

J. Infect. Dis. 182:698-707(2000).

-! SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN El.

EMBL; AF271827; AAG16163.1;

-InterPro; IPRO02519; HCV_env.

Pfam: PF01559; HCV_env. 1.

Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.0%; Score 46; DB 12; Length 137; Best Local Similarity 100.0%; Pred. No. 0.17; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 100.0%; Score 46; DB 12; Length 137; Best Local Similarity 100.0%; Pred. No. 0.17; Matches 10; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                            EMBL, AF271826; AAG16162.1; -.
InterPro, IPR00219; HCV_env.
Pfam, PF01539; HCV_env, FCV_env.
Coat protein; Envelope protein; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                            108FB0B82EB1BCD7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14865 MW; 096F0AB88699341A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         137 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                            14810 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                         1
137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     137 137 1
                                                                                                                                                                                                                                                                                                                                                                                                            137 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLALLSCLTV 10
                                                                                                                                                SEQUENCE FROM N.A. STRAIN=0873;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus.
                                                                                        Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                         Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09E2N8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
Q9E2N8
 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Óλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 16, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (FRAGMENT).
Heparitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
                                              MEDLINE=20407394; PubMed=10950762;
Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
-! SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN El.
EMBL, AF271824; AAG16160.1;
-! Diat. PF01539; HCV_env.
Pfam; PF01539; HCV_env.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-0800;
MEDLINE=20407394; PubMed=10950762;
Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1.
EMBL, AF271825; AGG1616.1;
-.. Interpro; IPR002519; HCV_env.
Pfam; PF001599; HCV_env. 1.
Coat protein; Envelope protein; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                    Length 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 137;
                                                                                                                                                                                                                                                                                                                                100.0%; Score 46; DB 12; Length 1
100.0%; Pred. No. 0.17;
Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                              77A0481634D0EE21 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             267F9F394F9FD3B7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09E2N9 PRELIMINARY; PRT; 137 AA. 09E2N9; 01-MAR-2001 (TrEMBLrel. 16, Created) 01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 46; DB 12;
100.0%; Pred. No. 0.17;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           137 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER 1 1 1 1 NON_TER 137 137 SEQUENCE 137 AA;
                                                                                                                                                                                                                                                                              137 AA; 14889 MW;
                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 100.00
-hom 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                         137
                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                            1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transmembrane.
                                                                                                                                                                                                                                       NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 11
```

09E2P0

a ò

ö

Gaps

ö

ö

Gaps

;

Q9E2N9

ID AC ID

õ

```
ò
                                       Op
                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                               ö
                                     01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                               Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
NCBL_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-20407394; PubMed-10850762;
Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
Ray S.C., Arthur R.R., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:189-707(2000).
-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1.
EMBL, PAC71829; AAG16165.1;
-InterPro; IPR002519; HCV_env.
Pfam: PF01539; HCV_env; 1.
                                                                                                                                                                                                                                                                                                           DB 12; Length 137;
                                                                                                                                                                                                                                                                                                                0.17;
has 0; Indels
                                                                                                                                                                                                                                                                             137 AA; 14846 MW; FFB48C447426EB43 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6E7DA1C046CFF313 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                    137 AA.
                    137 AA
                                                                                                                                                                                                                                                                                                         100.0%; Score 46; DB
100.0%; Pred. No. 0.1
:ive 0; Mismatches
                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 1
137 137
137 AA; 14777 MW;
                                                                                                                                                                                                                                                                                                          Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                    137
                                                                                                                                                                                                                                                                                                                                              1 LLALLSCLTV 10
| | | | | | | | | | | |
| 1 LLALLSCLTV 10
                                                                                                                                     SEQUENCE FROM N.A. STRAIN=0922;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                       Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=11103;
                                                                                                                                                                                                                                                         \begin{array}{c} 1 \\ 137 \end{array}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=0923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (FRAGMENT).
                                                                             (FRAGMENT)
                                                                                                                                                                                                                                                                    NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                          NON_TER
                   09E2N7
                                                                                                                                                                                                                                                                                                                                                                                                                 Q9E2N6
                                                                                                                                                                                                                                                                                                                                                                                                RESULT 14
Q9E2N6
 13
RESULT
Q9E2N7
                    ò
                                                                                                                                                                                                                                                                                                                                                                  g
```

DB 12; Length 137;

100.0%; Score 46;

Query Match

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                        01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                  Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ray S.C., Arthur R.C., Carella A., Bukh J., Thomas D.L.;
"Genetic Epidemiology of Hepatitis C Virus throughout Egypt.";
J. Infect. Dis. 182:698-707(2000).
-! SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN El.
EMBL, AF271830; AAG16166.1;
-InterProt. IPRO02519; HCV_env.
Pfam; PF01539; HCV_env. 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 137;
                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D2EF463ED439682E CRC64;
                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 46; DB 12;
100.0%; Pred. No. 0.17;
Live 0; Mismatches 0;
100.0%; Pred. No. 0.17;
                                                                                                                                                                                                     137 AA.
                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Search completed: August 23, 2002, 10:21:58 Job time: 1498 sec
                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-20407394; PubMed-10950762;
                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              137 AA; 14760 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 100.0
Matches 10; Conservative
                    10; Conservative
Best Local Similarity
Matches 10; Conserv
                                                          1 LLALLSCLTV 10
                                                                                 1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLALLSCLTV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-1150
                                                                                                                                                                                                                                                                                                                                                                                     Hepacivirus
                                                                                                                                                                                                                                                                                                                        (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                       Q9E2N5;
                                                                                                                                                                                                   Q9E2N5
                                                                                                                                                           15
```

•

٠,

```
August 23, 2002, 10:00:58 ; Search time 179.72 Seconds (without alignments) 6.180 Million cell updates/sec
                                                                                                                                                                                                                                                                                                    747574
4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                   747574 seqs, 111073796 residues
GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

    protein search, using sw model

                                                                                                                                                                                                                     BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                              length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                              A_Geneseq_032802
                                                                                                                                                       US-08-854-825-3
49
                                                                                                                                                                                    1 QLRRHIDLLV 10
                                                                                                                                                     Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                  sed
                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                             Minimum DB :
Maximum DB :
                                                           OM protein
                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                            Database
                                                                                          Run on:
```

1: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
3: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
4: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
5: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
7: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
8: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
8: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
9: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
110: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
111: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
112: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
113: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1992.DAT:*
114: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1992.DAT:*
115: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1992.DAT:*
116: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
117: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
118: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
119: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
119: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
119: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
119: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
119: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
120: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
121: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
122: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
123: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
124: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:*
125: /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1990.DAT:* 14: 15: 17: 19: :01

Pred. Now is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Description	Cytotoxic T-cell e	T_cell epitope/MHC	HLA Class I motif	Vaccine related MH	Hepatitis C virus	HCV El peptide El-	Peptide 19 based o	HCV antiqenic Env	Single branch of o	Hepatitis C virus	Protein encoded by
SUMMARIES	AAR84572	AAY10222	AAY10484	AAM99361	AAR84421	AAR90972	AAR20769	AAR74234	AAR20779	AAR84420	AAB18533
DB	16	20	20	22	16	17	13	16	13	16	21
% Query Match Length DB I	10	10	10	10	20	20	44	44	48	97	06
% Query Match	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Score	49	49	49	49	49	49	49	49	49	49	49
Result No.	-	7	e	4	ഗ	9	7	80	6	10	11

AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides

ဌ

Novel molecule comprising a cytotoxic T cell epitope - used vaccinate against hepatitis C viral infection

Protein encoded by HCV S2 domain anti HCV subtype la E1 Hepatitis C virus HCV E1 (envelope p	ogo ti			itis itis itis itis itis	HCV-1 El protein. HCT23 El protein. Th El protein. Sy HCT27 El protein. HCT18 El protein.	E1 p itis 72-e CV-E 68-e
AAB18532 AAR90935 AAX69652 AAR84355					AAR33982 AAR33985 AAR33984 AAR33986 AAR33983	
2027	2244				33 14 14 14 14 14 14 14 14 14 14 14 14 14	+444444
1320	100	9444	56666	1922	66666	3555113
100.0 100.0 100.0 100.0	100.0	100.0	1000.0	100.0	100.0 100.0 100.0	1000.001
4 4 4 4 4 0 0 0 0 0	4 4 4 4 0 0 0 0 0	4 4 4 4 4 0 0 0 0 0	4 4 4 4 4 v v v v v	4 4 4 4 4 2 0 0 0 0	4 4 4 4 4 0 0 0 0 0	444444
12 13 14 15 16	17 18 19 20	21 23 24 24	25 26 28 28 28	33 33 33 33 33 33	34 35 37 38	0 0 0 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7

SULT 1 R84572	AAR84572 standard; peptide;	AC AAR84572; XX	DT 25-APR-1996 (first entry)	Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El	<pre>XX KW Hepatitis C virus; HCV; epitope; vaccine; immunogen. v,</pre>	OS Hepatitis C virus.	AA NO9525122-A1.	AA PD 21-SEP-1995.	XX PF 16-MAR-1995; 95WO-US03224.	AX PR 17-MAR-1994; 94US-0214650.	AA (SCRI) SCRIPPS RES INST.	XX DR WPI; 1995-336941/43.	Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	AARR AARR AARR AAARA AAAAA AAAAA AAAAA AAAAA AAAAA AAAAA AAAA	1 84572 standard; peptide; 10 AA. 84572; APR-1996 (first entry) otoxic T-cell epitope, aa 257-266 of HCV-1 El region atitis C virus; HCV; epitope; vaccine; immunogen. atitis C virus. 525122-A1. SEP-1995, MAR-1995; 95WO-US03224. AAR-1994; 94US-0214650. RI) SCRIPPS RES INST. ny A, Chisari FV; ; 1995-336941/43. el molecule comprising a cytotoxic T cell epitope cinate against hepatitis C viral infection im 1; Page 60; 85pp; English. s4570-616, AAR84885-90 and AAR91054 are all HCV-1 de
AAR84572 standard; peptide; 10 AA. AAR84572; 25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HC Hepatitis C virus; HCV; epitope; vaccine; Hepatitis C virus. W09525122-Al. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST.	AAR84572; 25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 E1 Hepatitis C virus; HCV; epitope; vaccine; immunog Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST.	25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 E1 Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST.	Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El Hepatitis C virus; HCV; epitope; vaccine; immunog Hepatitis C virus. W09525122-Al. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST.	Hepatitis C virus; HCV; epitope; vaccine; Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST.	Hepatitis c vir WO9525122-A1. 21-SEP-1995. 16-MAR-1995; 17-MAR-1994; (SCRI) SCRIPPS	W09525122-A1. 21-SEP-1995. 16-MAR-1994; 17-MAR-1994; (SCRI) SCRIPPS	21-SEP-1995. 16-MAR-1995; 17-MAR-1994; (SCRI) SCRIPPS	16-MAR-1995; 17-MAR-1994; (SCRI) SCRIPPS	17-MAR-1994; (SCRI) SCRIPPS	(SCRI) SCRIPPS RES				V I	
AAR84572 standard; peptide; 10 AA. AAR84572; 25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El Hepatitis C virus; HCV; epitope; vaccine; immunog Hepatitis C virus. W09525122-Al. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epit vaccinate against hepatitis C viral infection	AAR84572; 25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El region Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection	25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El region Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. WO9525122-Al. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (\$CRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection	Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El region Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-Al. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (\$CRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection	Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95W0-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995, 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95W0-US03224. 17-MAR-1994; 94US-0214650. (\$CRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	(SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection	Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection		PS	1;
AAR84572 standard; peptide; 10 AA. AAR84572; 25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El region Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95W0-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	AAR84572; 25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El region Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95W0-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection Claim 1; Page 60; 05pp; English.	25-APR-1996 (first entry) Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El region Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-Al. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	Cytotoxic T-cell epitope, aa 257-266 of HCV-1 El region Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-Al. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	Hepatitis C virus; HCV; epitope; vaccine; immunogen. Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95W0-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	Hepatitis C virus. W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (\$CRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	W09525122-A1. 21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	21-SEP-1995. 16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	16-MAR-1995; 95WO-US03224. 17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	17-MAR-1994; 94US-0214650. (SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	(SCRI) SCRIPPS RES INST. Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	Cerny A, Chisari FV; WPI; 1995-336941/43. Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection Claim 1; Page 60; 85pp; English.	Novel molecule comprising a cytotoxic T cell epitope - vaccinate against hepatitis C viral infection Claim 1; Page 60, 85pp; English.	Claim 1;	X U	and AAR91054

ALIGNMENTS

N

```
Query Match
                                                                                                        g
                                                                                                                                                                                                                                                                  δ
                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       an embryonic antigen, an oncogine antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. mallghant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAX10071 to AAX10639 represent examples of peptide
from the core, E1, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptide specific cytotoxic T-cell activity. The peptides AAR84570-77 were found to have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                        Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                  .;
0
                                                                                          ch 100.0%; Score 49; DB 16; Length 10; 1 Similarity 100.0%; Pred. No. 0.0094; 10; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                 T cell epitope/MHC ligand SEQ ID NO:152.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Page 29; 199pp; English.
                                                                                                                                                                                                                                                   AAY10222 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97US-0988320.
97CA-2209815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US14289.
                                                                                                                                                                                                                                                                                                       12-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kuendig TM, Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1999-120514/10.
                                                                                                                    Local Similarity
                                                                                                                                                          1 QLRRHIDLLV 10
                                                                                                                                                                         Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antigens given in
                                                                 10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                 Sequence
                                                                                                                                                                                                                                                                              AAY10222;
                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                    Best Loca
Matches
                                                                                                                                                                                                                                       AAY10222
                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                             8888888
                                                                                                                                                            ð
                                                                                                                                                                                    අ
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the level of the antigen in the mammal's Immediate, which is the late of the antigen in the mammal's Immediate, which are maintain e.g. a differentiation antigen, a tumour specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the Iymphatic system provides for potent CTL stimulation that takes place in the miliau of the Iymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAY10071 to AAY10639 represent examples of peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention describes a method of inducing and/or sustaining
                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
   Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 49; DB 20; Length 10; 100.0%; Pred. No. 0.0094; Didels o; Mismatches 0; Indels
                                                           Indels
Score 49; DB 20;
Pred. No. 0.0094;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HLA Class I motif peptide SEQ ID NO:414.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Page 42; 199pp; English
                                                                                                                                                                                                                                                                                                                                AAY10484 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (CTLI-) CTL IMMUNOTHERAPIES CORP.
100.0%; Sc
100.0%; Pr
tive 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97CA-2209815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98WO-US14289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0988320
                                                                                                                                                                                                                                                                                                                                                                                                                                                        12-MAY-1999 (first entry)
                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 10; Conserv
                               Best Local Similarity
Matches 10; Conserv
                                                                                                                                                          1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9902183-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .0-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kuendig TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                               AAY10484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                           ٣
                                                                                                                                                                                                                                                                                                       AAY10484
```

Gaps

ö

Indels

;

Mismatches

; 0

Conservative

10;

Matches

```
contains an N-terminal glutamic acid (Glu) or glutamine (Cln) residue in the form of an addition salt with a strong, physiologically acceptable acid (II). Also described are: (a) a pharmaceutical composition containing at least one (I); (b) a vaccine containing at least one (I) where this is a major histocompatibility complex (MHC) ligand (Ia); (c) a method for in vitro diagnosis of diseases associated with the presence of (Ia); (d) a kit for method (c) that includes a (Ia); and (e) a process for preparing (I). (I) has immunomodulator, endocrine, antiallerist, meuroprofectent, virucidal, bactericidal, antiparasitio, fungicidal and cytostatic activities. (I) are useful, in human or veterinary medicine, in pharmaceutical compositions (for treating immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              disorders, e.g. immune deficiency, autoimmune states, hypersensitivity, allergy, graft rejection, infection, hormonal disorders and central nervous system diseases), also, where (I) is a MHC ligand (Ia), in vaccines for treatment or prevention of: (1) viral, bacterial, parasitic or fungal infections; or (ii) of cancers. A particular application is in anti-melanoma vaccines. (I) are also useful for in vitro diagnosis of diseases associated with interactions between MHC and (I), e.g. melanoma and human immunodeficiency virus infection. AAM98898 to AAM99592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stabilized pharmaceutical containing N-terminal glutamic acid or glutamine, useful e.g. in anti-melanoma vaccines, is an addition salt with strong acid \cdot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               peptides which can be used in pharmaceutical compounds from
                                                                                                                                                                                                                                                                                                                                             MHC; immunomodulator; antiallergic; endocrine; neuroprotectant; virucidal; bactericidal; antiparasitic; fungicidal; cytostatic; medicine; pharmaceutical; immune disorder; immune deficiency; autoimmune; hypersensitivity; allergy; graft rejection; infection; hormonal disorder; central nervous system disease; cancer; melanoma anti-melanoma vaccine; human immunodeficiency virus.
                                                                                                                                                                                                                                                                                                                           vaccine; major histocompatibility complex;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention describes a pharmaceutical compound (I) that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goetsch L;
                                                                                                                                                                                                                                                                                Vaccine related MHC ligand peptide SEQ ID NO:464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Klinguer-Hamour C, Corvaia N, Beck A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (FABR ) FABRE MEDICAMENT SA PIERRE.
                                                                                                                                                 AAM99361 standard; Peptide; 10 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 9; Page 110; 149pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22-MAR-2001; 2001WO-FR00872.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-MAR-2000; 2000FR-0003711.
                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                             Slutamic acid; glutamine;
MHC; immunomodulator; ant:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2001-611470/70
                      1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10 AA;
                                                                                                                                                                                                                                                                                                                           Glutamic acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200170772-A2
                                                                                                                                                                                                                                     07-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               represent
                                                                                                                                                                                              AAM99361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                               AAM99361
                                                                                                                                                                                              qq
```

Score 49; DB 22; Length 10; Pred. No. 0.0094;

100.0%; 100.0%;

Query Match Best Local Similarity

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HCV; E1; E2; disulphide bond cleavage; envelope protein; vaccine; human; serotype; reversed phase hybridisation assay; genotype; antigen; sera.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Polypeptides comprising 8-104 (pref. 8-68) amino acids from the HCV E1 region sequence spanning positions 253-332 and containing a T-cell stimulating epitope are used in HCV immunogenic compositions. The present sequence is a specifically claimed example of such a T-cell epitope-containing peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C Virus immunogenic polypeptide contg. a T-cell stimulating epitope - from core, El, E2 and NS3 regions, useful in production of vaccines, therapeutic agents, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                  HCV; immunogen; El region; immunodominant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 49; DB 16;
100.0%; Pred. No. 0.019;
ive 0; Mismatches 0;
                                                                                                                                                         Hepatitis C virus El region (253-272) peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV El peptide El-43 for competition studies.
                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                     Maertens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 26; Page 70; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A.
                                                                                   AAR84421 standard; peptide; 20 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR90972 standard; peptide; 20
                                                                                                                                                                                                                                                                                             94WO-EP03555.
                                                                                                                                                                                                                                                                                                                    93EP-0402718
                                                                                                                                                                                                                                                                                                                                                                     Deleys R, Leroux-Roels G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                              cell epitope; vaccine,
                                                                                                                                                                                                                                                                                                                                             (INNO-) INNOGENETICS NV
                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1995-193822/25
1 QLRRHIDLLV 10
            Hepatitis C virus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14
                                                                                                                                                                                                                     Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-OCT-1994;
                                                                                                                                                                                                                                                                                                                     04-NOV-1993;
                                                                                                                                                                                                                                            W09512677-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-SEP-1996
                                                                                                                                 16-JAN-1997
                                                                                                                                                                                                                                                                    11-MAY-1995
                                                                                                        AAR84421:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAR90972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR90972
                                                                       AAR84421
                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
This peptide is one of 19 specifically claimed antigens based on the immunoreactive regions of the envelope protein and non-structural proteins NS-1, NS-2, NS-3 and NS-5 for the Hepatitis C virus. The invention also concerns analogues, segments, mixtures, conjugates and polymers of these peptides. The C-terminal amino acid may be amidated. See AAR20751-R20782.
                                                                                                                                                                                                                                                                                                                                   New synthetic peptide specific for HCV antibodies - for detection of HCV or NANBHV e.g. by enzyme-linked immunosorbent assay and is immunogen for preparation of vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Structured antigenic peptide library; SSAL; vaccine; diagnostic; therapeutic; hepatitis C virus; HCV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 49; DB 13; Length 44; 100.0%; Pred. No. 0.042; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "A4;S5;F2;T4;V1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "G9; S2; N4; D1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR74234 standard; Peptide; 44 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "R12;K2;N2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "E12; V2; D2"
                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1; Page 90; 98pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "N14;G2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "S14;L2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "R15;H1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HCV antigenic Env peptide SSAL
                                                                                                   91US-0719819.
90US-0558799.
91US-0651735.
91US-0667275.
                                                            91EP-0112620
                                                                                                                                                                                                              (UNBI-) UTD BIOMEDICAL INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24-DEC-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note=
                                                                                                                                                                                                                                                     Chang YW, Hosein B;
                                                                                                                                                                                                                                                                                            WPI; 1992-034279/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Misc-difference 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc-difference 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Misc-difference
                                                                                                                                                                    11-MAR-1991;
                                                            26-JUL-1991;
                                                                                                     24-JUN-1991;
26-JUL-1990;
                                                                                                                                            07-FEB-1991;
                     29-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR74234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ထ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR74234
    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR90965-R90980 and AAR90995-R91015 represent synthetic hepatitis C virus (HCV) El and E2 peptides used in competition studies. This sequence represents a synthatic El peptide, and corresponds to residues c sequence represents a synthatic El peptide, and corresponds to residues control of the El protein sequence. These sequences are useful for in viro monitoring of HCV disease, or prognosis of the response to interferon treatment of patients suffering from HCV infection. These sequences compete with the proteins produced by AAT12704-T12709 and AAT12961-T12974, which are included in vectors for the production of recombinant El, E2, and E1/E2. The recombinant proteins can then be isolated and purified by carrying out a disulphide bond cleavage agent, after lysis of recombinant host cells. The constructs containing the purified HCV envelope proteins can be used for vaccinating humans against HCV, for in vitro detecting one or more serological types of HCV present in a serotyping assay for detecting one or more serological types of HCV present in a solid substrate and incorporated into a reversed phase hybridisation assay for determining the presence or the genotype of HCV. The new purification method preserves the conformation of the recombinantly expressed E1, E2 and E1/E2, and eliminates contaminating proteins. Antigens isolated because the contaminating proteins. Antigens isolated because the contaminating the presence or the genotype of the recombinantly expressed E1, E2 and E1/E2, and eliminates contaminating proteins. Antigens isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                 Purifying recombinant hepatitis C virus (HCV) El and E2 envelope proteins - in presence of dissulphide bond cleavage agent, to produce proteins suitable for direct use in vaccines or diagnostic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide 19 based on immunoreactive region of Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Non-A, non-B hepatitis virus; non-structural protein; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 49; DB 17; Length 20; 100.0%; Pred. No. 0.019; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                  De Martynoff G, Maertens G;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 7; Page 66; 146pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR20769 standard; Protein; 44 AA.
                                                                                                                         95WO-EP03031.
                                                                                                                                                                  94EP-0870132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10; Conservative
                                                                                                                                                                                                           (INNO-) INNOGENETICS NV.
                                                                                                                                                                                                                                                  Buyse M,
                                                                                                                                                                                                                                                                                            WPI; 1996-129401/13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20 AA;
                                                                                                                                                                                                                                                                                                                                                                                                      assays of HCV
                                       WO9604385-A2
                                                                                                                         31-JUL-1995;
                                                                                                                                                                  29-JUL-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-MAY-1992
                                                                              15-FEB-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP468527-A.
Synthetic.
                                                                                                                                                                                                                                                  Bosman F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR20769;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
```

AAR20769

g

ð

ö

Gaps

; 0

```
91US-0719819.
90US-0558799.
91US-0651735.
91US-0667275.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              91EP-0112620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (UNBI-) UTD BIOMEDICAL INC.
                                                                                                                                                                                         (first entry)
                                                                               Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                      47
/label= |
                                                                                                                                                                                                                                                                                   /note=
                                                                                                                                                                                                                                                                                                                                                                     /note=
                                                                                                             1 QLRRHIDLLV 10
                                                                                                                    44 AA;
                                                                                                                                                                                                                                                             Key
Modified-site
                                                                                                                                                                                                                                                                                                                                                      Modified-site
                                                                                                                                                                                                                                                                                                      Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-JUL-1990;
07-FEB-1991;
11-MAR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              26-JUL-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24-JUN-1991;
                                                                                                                                                                                         05-MAY-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                39-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                   EP468527-A
                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                             AAR20779
                                                                                                                                                                            AAR20779;
                                                               Sequence
                                                                                                                                                σ
                                                                                                                                                      AAR20779
                                                                                                                                                 RESULT
 2222222222
                                                                                                                           q
                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Structured antigenic peptide libraries contain some invariant amino acids - accommodate variations in antigenic structure so are effective against many different strains of e.g. rapidly mutating
                                                                                                                                                                                                                                                                                                                                                                                                                                   Nixon DF;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Kowalski J,
TJ;
                                                                                                                                 'note= "G5; A2; S2; V2; P2; R2; N1"
                                                                                                                                                                                                      /note= "T11;Q2;H1;A1;R1"
                                                                                                                                                                                                                    'note= "Q5;T7;G2;N1;S1"
                                                                                                                                                                                                                                                                                                                                              /note= "L9;F5;V1;A1"
                                                                                                                                                                                                                                                                                                                                                                                                                                 Koff CW, K
                                                                                                                   'note= "D5;N7;Q2;H2"
                                                                                                                                              note= "K5;S5;T2;G4"
                                                                                                                                                            'note= "L5;V3;I4;A4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 4; Page 83-84; 216pp; English
                                                                                                      'note= "R12;Q2;K2"
                    /note= "A12;02;P2"
                                                                                                                                                                                                                                                                                         'note= "L12;I2;V2"
                                                                                        /note= "T5;A7;V4"
                                                                                                                                                                                                                                                                                                                    'note= "S7;A8;T1"
                                               "T14;S2"
                                                             "T12; N4"
                                                                                                                                                                          'note= "P12;L4"
                                                                                                                                                                                         'note= "A3;T13"
                                                                                                                                                                                                                                  'note= "L10;16"
                                                                                                                                                                                                                                                'note= "R12; T4"
                                                                                                                                                                                                                                                                           'note= "L12; M4"
                                                                                                                                                                                                                                                                                                      'note= "G12;M4"
                                                                           'note= "V9;L7"
                                                                                                                                                                                                                                                             'note= "I7; V9"
                                                                                                                                                                                                                                                                                                                                  'note= "T9;A7"
                                                                                                                                                                                                                                                                                                                                                                                                                     (UNBI-) UNITED BIOMEDICAL INC
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ye J,
                                                                                                                                                                                                                                                                                                                                                                                                       93US-0143412.
                                                                                                                                                                                                                                                                                                                                                                                        94WO-US12268
                                                                                                                                                                                                                                                                                                                                                                                                                                   Kaminsky SM,
        /note=
                                  'note=
                                                'note=
                                                               'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                          Wang CY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1995-178890/23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          viruses in vaccines
Misc-difference 12
             Misc-difference
                                                                   Misc-difference
                           Misc-difference
                                        Misc-difference
                                                       Misc-difference
                                                                                 Misc-difference
                                                                                               Misc-difference
                                                                                                             Misc-difference
                                                                                                                          Misc-difference
                                                                                                                                       Misc-difference
                                                                                                                                                      Misc-difference
                                                                                                                                                                    Misc-difference
                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                Misc-difference
                                                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                         Misc-difference
                                                                                                                                                                                                                                                      Misc-difference
                                                                                                                                                                                                                                                                    Misc-difference
                                                                                                                                                                                                                                                                                 Misc-difference
                                                                                                                                                                                                                                                                                               Misc-difference
                                                                                                                                                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                                                                        Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                         26-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                       26-OCT-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Walfieldam,
                                                                                                                                                                                                                                                                                                                                                             W09511998-A1
                                                                                                                                                                                                                                                                                                                                                                           04-MAY-1995.
                                                                                                                                                                                                                                                                                                                                                                                                                                   'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                   Hosein
```

```
ö
In a structured synthetic antigen library, specific amino acids and their frequency of appearance at a variant locus within aligned peptide sequences are defined by the primary sequences of the several variants that make up the alignment used to construct the antigen peptide library. Branched SSALs representing the highly variable yet antigenic regions of the HCV Env and NSI proteins are given in AARA4333-37 and were used as the key ingredients in a polyvalent vaccine for highly divergent global strains of HCV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the alpha and the epsilon amino groups. Lys(47) may be amidated if amino acid 48 is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "the lysine residue is joined to two 44mer
peptides via the alpha and epsilon amino
groups"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "i.e. is any amino acid containing no side
  chain functional group or may be absent"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lys(47) via
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              - branch_point
    "the lysine is joined to Lys(45) via its alpha-amino group and to Lys(47) via its alpha-carboxyl group. The epsilon amino group forms a peptide bond with a lysine group which carries two 44mer peptides"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                 Length 44;
                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 49; DB 16; Length 4
100.0%; Pred. No. 0.042;
vismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Non-A, non-B hepatitis virus; hepatitis C virus; non-structural protein; vaccine; branching poly-L-lysine; octameric branching resin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ysine residues are joined to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Single branch of octameric HCV immunogenic peptide #7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Misc-difference 48
/label= Ala, Val, Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /label= branch_point
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    branch_point
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  not present"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              standard; Protein; 48 AA.
```

Gaps

ö

Indels

ö

```
Protein encoded by a novel hepatitis C virus cDNA clone CA167b.
                                                                                                                                                                                                                            Hepatitis C virus; HCV; antisense polynucleotide; polyprotein; viral infectivity; viral replication.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel composition comprising a hepatitis C virus antisense polynucleotide which is complementary to or corresponds to a strand of the virus genome, and selectively hybridises to it
 100.0%; Score 49; DB 16; Length 76; 100.0%; Pred. No. 0.073;
                       0; Mismatches
                                                                                                                                AAB18533 standard; Protein; 90 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example; Fig 9; 75pp; English.
                                                                                                                                                                                                                                                                                                                                                          89US-0325338.
89US-0341334.
89US-0355002.
                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                    16-MAR-1990; 2000EP-0109602
                                                                                                                                                                                                                                                                                                                                                                                              90EP-0302866
                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                             Kuo
                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                             Choo Q,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2000-566891/53.
N-PSDB; AAA75289.
                                                                                                                                                                                                                                                                                                                                                                                                                      (CHIR ) CHIRON CORP
        Best Local Similarity
Matches 10; Conserv
                                             1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 10; Conserv
                                                            1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                          17-MAR-1989;
20-APR-1989;
18-MAY-1989;
                                                                                                                                                                                                                                                                                      EP1034785-A2.
                                                                                                                                                                                                                                                                                                                                                                                              16-MAR-1990;
                                                                                                                                                                              15-JAN-2001
                                                                                                                                                                                                                                                                                                              13-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Houghton M,
                                                                                                                                                       AAB18533;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
  Query Match
                                                                                                                    AAB18533
                                                ò
                                                                     g
                                                                                                                                           δ
                                                                                                                                                                                                                                                                           ;
0
                                                                                                                             The 44mer peptide component (amino acids 1-44) corresponds to peptide 19 (see AAR20769) taken from hepatitis C. There are a total of 8 such 44mer peptides in the polymeric peptide, each attached to the branching poly-L-lysine resin. Peptide immunogens comprising 16, 8, 4 or 2 peptides attached to poly-L-lys resin are claimed (see Claim 21). See AAR20751-R20782.
                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C Virus immunogenic polypeptide contg. a T-cell stimulating epitope - from core, El, E2 and NS3 regions, useful in production of vaccines, therapeutic agents, etc.
                                                       New synthetic peptide specific for HCV antibodies - for detection of HCV or NANBHV e.g. by enzyme-linked immunosorbent assay and is immunogen for preparation of vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Polypeptides comprising 8-80 contiguous amino acids from the HCV El region sequence spanning positions 253-332 (sic) and which contain a T-cell stimulating epitope are used in HCV immunogenic
                                                                                                                                                                                                                                                                           ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus; HCV; immunogen; El region; immunodominant; T cell epitope; vaccine.
                                                                                                                                                                                                                                                  100.0%; Score 49; DB 13; Length 48; 100.0%; Pred. No. 0.046; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus El region (253-332) peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Maertens G;
                                                                                                      Example 19; Page 48; 98pp; English.
                                                                                                                                                                                                                                                                                                                                                                                AAR84420 standard; peptide; 76 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 13; Page 65; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94WO-EP03555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93EP-0402718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Deleys R, Leroux-Roels G,
                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                           10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (INNO-) INNOGENETICS NV.
                                  WPI; 1992-034279/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1995-193822/25.
                                                                                                                                                                                                                                                                                                 1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                               Hepatitis C virus.
                                                                                                                                                                                                                48 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 compositions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W09512677-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                06-JAN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-MAY-1995.
           ΧM,
                                                                                                                                                                                                                                                                                                                                                                                                        AAR84420;
                                                                                                                                                                                                                  Seguence
                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
            Chang
                                                                                                                                                                                                                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                       AAR84420
ò
                                                                                                                                                                                                                                                                                                                        g
```

sense

```
ö
The specification describes a pharmaceutical composition which comprises a hepatitis C virus (HCV) antisense polynucleotide. The HCV is characterized by a positive stranded RNA genome which has 40% homology at the polypeptide level to a HCV polyprotein. The antisense polynucleotide binds to cellular polynucleotides which enhance and/or are required for viral infectivity, replicative ability or chronicity. The antisense polynucleotides may also be designed to bind with high specificity, to be of increased stability, to be stable and to have low toxicity. The composition also comprises an agent which causes viral RNA to be inactive. The composition is used for preventing HCV replication in a system. The present sequence is encoded by a novel HCV cDNA sequence, which is used in the course of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 49; DB 21; Length 90; ilarity 100.0%; Pred. No. 0.086; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

/

RESULT 12

AAB18532

```
Claim 7; Fig 1(A-Y); 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard; Protein; 135 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HCV using affinity chromatography
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus subtype la
                                                                                                                                                                                                                                                      ö
                                                                                                                                                                  91EP-0114016.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98EP-0870142.
99EP-0870033.
                                                                                                                                                                                              90US-0504352.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                      Kuo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                     diagnosis; antibodies.
          HCV S2 domain antigen.
                                                                                                                                                                                                                                                     Houghton M,
                                                                                                                                                                                                                       (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                WPI; 1996-117956/13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129 AA;
                                                                                Hepatitis C virus
                                                                                                                                                                  3-APR-1991;
                                                                                                                                                                                              04-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22-FEB-1999;
                                                                                                                                       24-JAN-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY69652;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY69652
                                                                                                                                                                                                                                                      choo Q,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAY69652
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The specification describes a pharmaceutical composition which comprises a hepatitis C virus (HCV) antisense polynucleotide. The HCV is characterized by a positive strande RNA genome which has 40% homology at the polypeptide level to a HCV polyprotein. The antisense polynucleotide binds to cellular polynucleotides which enhance and/or are required for viral infectivity, replicative ability or chronicity. The antisense polynucleotides may also be designed to bind with high specificity, to be of increased stability, to be stable and to have low toxicity. The composition also comprises an agent which causes viral RNA to be inactive. The composition is used for preventing HCV replication in a system. The present sequence is encoded by a novel HCV cDNA sequence, which is used in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polynucleotide which is complementary to or corresponds to a sense strand of the virus genome, and selectively hybridises to it - \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                        Protein encoded by a novel hepatitis C virus cDNA clone CA156e
                                                                                                                                                 HCV; antisense polynucleotide; polyprotein; viral replication.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21; Length 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel composition comprising a hepatitis C virus antisense
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 49; DB 2 100.0%; Pred. No. 0.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                   AAB18532 standard; Protein; 106 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR90935 standard; Protein; 129 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example; Fig 8; 75pp; English.
                                                                                                                                                                                                                                                                                                         89US-0325338.
89US-0341334.
89US-0355002.
90EP-0302866.
                                                                                                                                                                                                                                                                                                                                                                                                              Kuo G;
                                                                                                                                                                                                                                                                                16-MAR-1990; 2000EP-0109602
                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              course of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                            Houghton M, Choo Q,
                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2000-566891/53.
                                                                                                                                                                                                                                                                                                                                                                                CHIR ) CHIRON CORP.
                                                                                                                                                                viral infectivity;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20 glrrhidllv 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        106 AA;
                                                                                                                                                                                            Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; AAA75288
                                                                                                                                                                                                                                                                                                                        20-APR-1989;
18-MAY-1989;
16-MAR-1990;
                                                                                                                                                                                                                      EP1034785-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-MAY-1996
                                                                                                                                                                                                                                                                                                          7-MAR-1989;
                                                                                            15-JAN-2001
                                                                                                                                                                                                                                                   3-SEP-2000
                                                               AAB18532;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR90935;
```

NAME OF THE PROPERTY OF THE PR

Best Loca

RESULT 13

q

ŏ

AAR90935

```
The combination comprises an HCV antigen from the C domain (pref. 22 - AAR90936) and at least one HCV antigen from the NS3 (pref. C33c - AAR90932), NS4 (pref. C100 - AAR90933), S (pref. S2 - AAR90935) or NS5 (AAR90934) domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The antigons may in the form of a fusion protein, a simple physical mixture, or the individual antigens commonly bound to a solid matrix. They are pref. prepd. by recombinant DNA techniques (primers are given in AAT12711-T12716), but can be synthesised or isolated from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Combinations of synthetic Hepatitis C Virus antigens - provide more effective diagnosis of {\sf Non-A}, {\sf Non-B} Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Envelope protein; oligomeric particle; HCV infection; immunogenic; cellular immunity; humoral immunity; El protein; subtype la; antigen; antibody; vaccine; treatment; prophylaxis; detection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
Non-A non-B hepatitis virus; NANBHV; HCV; antigen; detection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 49; DB 17; Length 129; 100.0%; Pred. No. 0.12; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV subtype la El protein fragment ("Ton").
```

93EP-0402718.

```
04 - NOV - 1993;
 δλ
                                                                                                                                                                                                   The invention relates to a novel oligomeric particle comprising hepatitis C virus (HCV) envelope proteins, with a diameter of 1-100 nm. The invention also encompasses a purified HCV envelope protein (preferably El or Els), specific antibodies generated against the oligomeric particles, or a single HCV envelope protein, and methods for detection of HCV antigens and antibodies. The HCV envelope oligomeric particles are highly immunogenic when presented to chronic HCV carriers, comprise a T-cell stimulating antigen such as core protein, El, E2, NS2, NS3, NS4A, NS4B, NS5A or NS5B. The oligomeric particle of the invention may be used in vaccine compositions against HCV and for inducing immunity against HCV in chronic HCV carriers, especially prior to, simultaneously with, or after any other therapy. They may be used for after liver transplantation or after presumed infection and also for prophylactically inducing immunity against HCV in HCV-infected individuals prior to rafter liver transplantation or after presumed infection and also for prophylactically inducing immunity against HCV antibodies raised to detect HCV antibodies raised against the oligomeric particles are used to detect HCV antibodies in a sample, and to detect HCV related T cell responses. Prior art methods for HCV vaccination have been unsuccessful. Prophylactic vaccination has also only been shown to be effective against a homologous strain of HCV. The present invention provides and any particles are used to detect HCV. The Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY69652-Y69654 represent HCV El protein fragments referred to in an exemplification of the present invention. AAY69652 represents an El fragment from HCV subtype la and AAY69653-Y60654 represent El fragments from two different HVC subtype lb strains.
                                                                                                                    Novel HCV envelope protein particles used for vaccination against HCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus; HCV; immunogen; El region; immunodominant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 49; DB 21; Length 135;
Pred. No. 0.13;
Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus El region (243-392) immunogenic fragment.
                                                  Van Wijnendaele F;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR84355 standard; protein; 147 AA.
                                                                                                                                                                        Example 5; Page 51; 105pp; English
                                                  Bosman A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Sc
100.0%; Pr
tive 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94WO-EP03555.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-JAN-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                (INNO-) INNOGENETICS NV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cell epitope; vaccine.
                                                  Maertens G,
                                                                                  WPI; 2000-147201/13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9512677-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-MAY-1995.
                                                                                                                                        infection
                                                Depla E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR84355;
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

```
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                       The present polypeptide from the HCV El region (spanning positions 243-392) and variants derived from another type of HCV, which contain a T-cell stimulating epitope, can be used in HCV immunogenic
                                                                                                                                                   Hepatitis C Virus immunogenic polypeptide contg. a T-cell stimulating epitope - from core, El, E2 and NS3 regions, useful in production of vaccines, therapeutic agents, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 49; DB 16; Length 147;
Pred. No. 0.14;
Mismatches 0; Indels C
                                                  Maertens G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: August 23, 2002, 10:00:59 Job time: 389 sec
                                                                                                                                                                                                                                                       Claim 3; Page 60; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 10; Conservative 0;
                                                  Deleys R, Leroux-Roels G,
(INNO-) INNOGENETICS NV
                                                                                                 WPI; 1995-193822/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
```

us-08-854-825-3.rag

THIS PAGE BLANK (USPTO)

sednence sed

44, 45, 37, 40,

Sequence

Potal number of

Searched:

0B 0B

Minimum I Maximum I

Database

Perfect score:

Sequence:

OM protein

Run on:

Scoring table:

58, 37, 38,

```
TITLE OF INVENTIÓN: PEPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1; Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/214,650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 49; DB 1; L.
US-08-086-428B-55
US-08-086-428B-55
US-08-086-428B-59
US-08-08-428B-59
US-08-440-103-37
US-08-440-103-40
US-08-440-103-44
US-08-440-103-44
US-08-440-103-44
US-08-440-542-37
US-08-440-542-38
US-08-440-542-40
US-08-440-542-40
                                                                                                                                                                                                                                                                             US-08-440-542-44
US-08-440-542-45
US-08-231-368-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Leydig, Voit & Mayer
STREET: Two Prudential Plaza, Suite 4900
CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 514
ATTORNEY AGENT INFORMATION:
NAME: $11 vert, Donald J.
REGISTRATION NUMBER: 37552
REFERENCE/COCKET NUMBER: 61230
TELECOMMUNICATION INFORMATION:
TELEPRAX: (312) 616-5600
TELEPRAX: 25-353
INFORMATION FOR SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Sequence 3, Application US/08214650
; Patent No. 5709995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Chisari, Francis V.
APPLICANT: Cerny, Andreas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 10 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: unknown
MOLECULE TYPE: peptide
US-08-214-650-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              single
     TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 QLRRHIDLLV 10
     00000000000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-214-650-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY:
STATE:
     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31, Appl
33, Appl
31, Appli
31, Appli
33, Appli
31, Appli
31, Appli
33, Appli
33, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Appli
Appli
Appli
Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Appl
Appl
                                                                                                                         August 23, 2002, 09:57:51; Search time 61.77 Seconds (without alignments) 3.954 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sednence sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
                  4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08 214 650 55

US-08 612-973-63

US-08 622-037-19

US-08 262-037-129

US-08 262-037-129

US-08 262-037-129

US-08 444-818-85

US-08 444-818-85

US-08 483-695-3

US-08 483-695-3

US-08 483-695-3

US-08 483-695-3

US-08 483-695-3

US-07-965-285-3

US-07-965-285-3

US-08 487-231-3

US-08 487-231-3

US-08 487-231-3

US-08 487-231-3

US-09-201-912-3

US-09-201-912-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-086-428B-52
US-08-086-428B-53
                                                                                                                                                                                                                                                                                                                                                                   hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PCT-US94-07280-5
PCT-US95-01087-5
                                                                                                                                                                                                                                                                                                                                231628 seqs, 24425594 residues
                    GenCore version (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Maximum Match 100%
Listing first 45 summaries
                                                                                           protein search, using sw model
                                                                                                                                                                                                                                                                           BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Issued_Patents_AA:*
                                                                                                                                                                                                                                                                                                                                                                                                       seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
                                                                                                                                                                                             US-08-854-825-3
49
                                                                                                                                                                                                                                       QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Match Length
                                    Copyright
```

Score

Result . 80 8 9 110 111 113 114 117 117 118 118 118 22 22 23 24 25 25 27

ó

Gaps

ó

Indels

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: MAERTENS, GERRT
APPLICANT: BOSMAN, FONS
APPLICANT: BOSMAN, FONS
APPLICANT: BUYSE, MARTYNOFF, GUS
APPLICANT: BUYSE, MARTE-ANGE
TITLE OF INVENTION: PURIFIED HEPATITIS C VIRUS ENVELOPE
TITLE OF INVENTION: PROTEINS FOR DIAGNOSTIC AND THERAPEUTIC USE
NUMBER OF SEQUENCES: 111
CORRESPONDENCE ADDRESS:
ADDRESSEE: NIXON & VANDERIYE P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                     CURRENT APPLICATION DATA:
SOFTWARE: Petentin Release #1.0, Version #1.25 (EPO)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/612,973
FILING DATE: 11-MAR-1996
CLASSIFICATION: 435
ATORNEY AGENT INFORMATION:
NAME: BYRNE, THOMAS E.
REGISTRATION NUMBER: 1487-10
TELECOMMUNICATION NUMBER: 14000
TELECOMMUNICATION NUMBER: 14000
TELEPHONE: (703) 816-4100
TELEPHONE: (703) 816-4100
TELEPHONE: (703) 816-4100
TELEFAX: (703) 816-4100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 100.0%; Score 49; DB 4; Length 20; Best Local Similarity 100.0%; Pred. No. 0.0072; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: ARLINGTON
STATE: VIRGINIA
COUNTRY: U.S.A.
ZIP: 22201-4714
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25 (EPO)
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
PROR APPLICATION DATA:
PROR APPLICATION DATA:
APPLICATION NUMBER: US 08/612,973
FILING DATE: 11-MAR-1996
ATTORNEY/AGENT INFORMATION:
NAME: BYRNE, THOMAS E.
REGISTATION NUMBER: 32,205
REFERENCE/DOCKET NUMBER: 1487-10
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: NIXON & VANDERHYE P.C. STREET: 1100 NORTH GLEBE ROAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/927,597
                                                                                                             COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               %3-08-927-597-63
; Sequence 63, Application US/08927597
; Patent No. 6245503
; GENERAL INFORMATION:
                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5 QLRRHIDLLV 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-612-973-63
               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
RESULT 2
US-08-214-650-55
US-08-214-650-55
Sequence 55, Application US/08214650
Patent No. 570995
GENERAL INFORMATION:
APPLICANT: Chisari, Francis V.
APPLICANT: Cerny, Andreas
TITLE OF INVENTION: PEPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LAMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:
ADDRESSE: Leydig, Voit & Mayer
STREET: Two Frudential Plaza, Suite 4900
STATE: IL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 63, Application US/08612973
Patent No. 6150134
GENERAL INFORMATION:
APPLICANT: MARRTENS, GERT
APPLICANT: BOSMAN, FONS
APPLICANT: BOSMAN, FONS
APPLICANT: BOYSE, MARRTENOFF, GUY
APPLICANT: BOYSE, WARRE-ANGE
TITLE OF INVENTION: PROTEINS FOR DIAGNOSTIC AND THERAPEUTIC USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 49; DB 1; Length 10; 100.0%; Pred. No. 0.0035; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: USA
ZIP: 60601
COMPUTER READABLE FORM:
MEDIUU TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/214,650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEE: NIXON & VANDERHYE P.C.: 1100 NORTH GLEBE ROAD ARLINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Silvert, Donald J.
REGISTRATION NUMBER: 37552
REGISTRATION NUMBER: 6123(
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 616-5600
TELEX: 25-353
INFORMATION FOR SEQ ID NO: 55:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 10 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 OLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VIRGINIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-214-650-55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 3
US-08-612-973-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
```

g ò

0;

```
Sequence 19, Application US/08262037
Patent No. 574723
GENERAL INFORMATION:
GENERAL INFORMATION:
TITLE OF INVENTION: SYNTHETIC PEPTIDES SPECIFIC FOR
TITLE OF INVENTION: THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV
TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES
NUMBER OF SEQUENCES: 18
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 49; DB 1; Length 44; ilarity 100.0%; Pred. No. 0.016; Conservative 0; Mismatches 0; Indels
                                              100.0%; Score 49; DB 1; Length 35; 100.0%; Pred. No. 0.013;
                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:

CLEASSIFICATION: 424

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 07/719,819

FILING DATE: 24-June-1991

APPLICATION NUMBER: 07/651,735

FILING DATE: 11-MAR-1991

APPLICATION NUMBER: 07/558,799

FILING DATE: 07-Feb-1991

APPLICATION NUMBER: 07/558,799

FILING DATE: 16-April-1990

APPLICATION NUMBER: 07/510,153

FILING DATE: 16-April-1990

ATTORNEY/AGENT INFORMATION:

NAME: MALTA C. H. Lin

REGISTRATION NUMBER: 29,323

REFERENCE/DOCKET NUMBER: 1151-404

TELECHONIN: 212-758-4800

TELECHONIN: 212-758-4800

TELEFAX: (212) 751-6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IBM PC COMPATIBLE
SYSTEM: PC-DOS/MS-DOS
WORDPERFECT 5.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: MORGAN & FINNEGAN
STREET: 345 PARK AVE.
CITY: NEW YORK
STATE: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FLOPPY DISK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 44 amino acids TYPE: Amino acid
                                              Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                 1 QLRRHIDLLV 10
                                                                                                                                                          20 QLRRHIDLLV 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29 QLRRHIDLLV 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE
                                                                                                                                                                                                                                                           US-08-262-037-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                         ВЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                    ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 81, Application US/08262037
Patent No. 5747239
GENERAL INFORMATION: THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV TITLE OF INVENTION: THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES OWNERS POWERSPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                        100.0%; Score 49; DB 4; Length 20; 100.0%; Pred. No. 0.0072; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER: 1151-4043 US3
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-758-4800
TELEFAX: (212) 751-6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE: FLOPPY DISK
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
FILING DATE:
CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/719,819
FILING DATE: 24-June-1991
APPLICATION NUMBER: 07/667,275
FILING DATE: 11-Mar-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 07-Feb-1991
APPLICATION NUMBER: 07/558,799
FILING DATE: 26-July-1990
APPLICATION NUMBER: 07/510,153
FILING DATE: 16-APRLI-1990
ATTOMEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: MORGAN & FINNEGAN STREET: 345 PARK AVE. CITY: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29, 323
TELEPHONE: (703) 816-4000
TELEFAX: (703) 816-4100
INFORMATION FOR SEQ ID NO: 63:
SEQUENCE CHARACTERISTICS:
LENGTH: 20 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (212) 751-684:
TELEX: 421792
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : 35 amino acids
Amino acid
                                                                                                                                                                                                                                                        Query Match 100.

Best Local Similarity 100.

Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Maria C. H. Lin
REGISTRATION NUMBER: 2
                                                                                                       TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                    Angle Angle NoteCULE TYPE: peptide US-08-927-597-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: Unknown
                                                                                                                                                                                                                                                                                                                                          1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                5 OLRRHIDLLV 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10154
                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
US-08-262-037-81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-262-037-81
                                                                                                                                                                                                                                                                                                                                                                                    g
```

ö

Gaps

. 0

```
δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
               Sequence 129, Application US/08262037
Patent No. 574729
GENERAL INFORMATION:
APPLICANT: Chang Yi Wang and Barbara Hosein
TITLE OF INVENTION: SYNTHERIC PEPTIDES SPECIFIC FOR
TITLE OF INVENTION: THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV
TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES
CORRESPONDENCE ADDRESS:
ADDRESSE: ADDRESS:
ADDRESSE: ADGRAN & FINNEGAN
STREET: 345 PARK AVE.
CITY: NEW YORK
STATE: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 130, Application US/08262037
Patent No. 5747239
GENERAL INFORMATION:
APPLICANT: Chang YI Wang and Barbara Hosein
TITLE OF INVENTION: SYNTHETIC PEPTIDES SPECIFIC FOR
TITLE OF INVENTION: THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV
TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 49; DB 1; Length 44; 100.0%; Pred. No. 0.016; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 1151-4043 US3
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-758-4800
TELEFAX: (212) 751-6849
                                                                                                                                                                                                                                                                                                                                                                          COMPUTER TOLDS

COMPUTER TEADABLE FORM:
MEDIUM TYPE: FLOPPY DISK
COMPUTER: DE PECOSYMS-DOS
SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
FILING DATE: 24-June-1991
APPLICATION NUMBER: 07/719,819
FILING DATE: 24-June-1991
APPLICATION NUMBER: 07/667,275
FILING DATE: 11-Mar-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 11-Mar-1991
APPLICATION NUMBER: 07/558,799
FILING DATE: 26-July-1990
APPLICATION NUMBER: 07/5510,153
FILING DATE: 16-APPLI-1990
APPLICATION NUMBER: 07/5510,153
FILING DATE: 16-APPLI-1990
APPLICATION NUMBER: 07/5510,153
FILING DATE: 16-APPLI-1990
APTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECT. 421792
TELECT. 421792
INFORMATION FOR SEQ ID NO: 129:
SEQUENCE CHARACTERISTICS:
LENGTH: 44 amino acids
TYPE: Amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29,323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Maria C. H. Lin
REGISTRATION NUMBER: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                           ZIP: 10154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TOPOLOGY:
US-08-262-037-129
US-08-262-037-129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-262-037-130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 49; DB 1; Length 44; 100.0%; Pred. No. 0.016; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 87, Application US/08444818

Patent No. 6150087

GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
ITILE OF INVENTION: NANBY Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777

CORRESPONDENCE ADDRESS:
ADDRESSE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
STATE: CA
COUNTRY: USA
COUNTRY: USA
COUNTRY: READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
                                                                                                                                                                                               WEDIUM TYPE: FLOPPY DISK
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WORDERFEGT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
FILING DATE: US/08/262,037
FILING DATE: 07/719,819
APPLICATION NUMBER: 07/719,819
FILING DATE: 124-June-1991
APPLICATION NUMBER: 07/667,275
FILING DATE: 11-Mar-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 10-Feb-1991
APPLICATION NUMBER: 07/558,799
FILING DATE: 16-API1-1990
APPLICATION NUMBER: 07/558,799
FILING DATE: 16-API1-1990
ATTORNEY/AGENT INFORMATION:
NAME: MATIA C. H. LIN
RECISTRATION NUMBER: 29,333
                                                                                                                                                                                                                                                                                                                   US/08/262,037
NUMBER OF SEQUENCES: 136
CORRESPONDENCE ADDRESS:
DDRESSEE: MORGAN & FINNEGAN
STREET: 345 PARK AVE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEX: 421792'
INFORMATION FOR SEQ ID NO: 130:
SEQUENCE CHARACTERISTICS:
LENGTH: 44 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-758-4800
TELEFAX: (212) 751-6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 100.0
Matches 10; Conservative
                                                                                                                                                     ZIP: 10154
COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unknown
                                                                   STREET: 345 PARK
CITY: NEW YORK
STATE: NEW YORK
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TOPOLOGY:
US-08-262-037-130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-444-818-87
```

```
APPLICANT: Eremsdorf, Christian
APPLICANT: Kremsdorf, Dina
APPLICANT: Forchor, Colette
APPLICANT: Porchor, Colette
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
NUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS: 10-40-00-01
                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                    DB 4; Length 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 49; DB 2; Length 166; Best Local Similarity 100.0%; Pred. No. 0.063; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Finnegan, Henderson, Farabow, Garrett & ADDRESSEE: Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Rclease #1.0, Version #1.25
APPLICATION NUMBER: US/08/483,695
                                                                                                                  100.0%; Score 49; DB 4; I
100.0%; Pred. No. 0.04;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05286-0001-00000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/965,285
FILING DATE: 18-MAR-1993
APPLICATION NUMBER: FF 91 06 882
FILING DATE: 06-JUN-1991
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                       Sequence 3, Application US/08483695
Patent No. 5866139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 0528
TELECHMUNICATION INFORMATION:
TELEPHONE: 202-408-4400
TELEFAX: 202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 1300 I Street, N.W. CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 202-408-4400 INFORMATION FOR SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          166 amino acids
                                                                                                                Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
                           ; MOLECULE TYPE: protein US-08-444-818-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ) MOLECULE TYPE: peptide US-08-483-695-3
      TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100 QLRRHIDLLV 109
                                                                                                                                                                                                     1 QLRRHIDLLV 10
                                                                                                                                                                                                                              20 QLRRHIDLLV 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
ZIP: 20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                                                                                                                              RESULT 11
US-08-483-695-3
                                                                                                                                                                                                       δy
                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 4; Length 90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 49; DB 4; Length 90 100.0%; Pred. No. 0.034; Cive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 85, Application US/08444818
Patent No. 6150087
EMERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NABUD Diagnostics and Vaccines NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
                    PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                           FILING DATE:

CLASSIFICATION NOMBER: US/UB/444,818
FILING DATE:

PRIOR APPLICATION DATE:

APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:

NAME: Harbin, Alisa A.

REGISTRATION NUMBER: 33,895
REGISTRATION NUMBER: 33,895
REFERNEE/COCKT NUMBER: 0110.002
TELEPHONE: (508)359-3876
TELECOMMUNICATION INFORMATION:

TELEPHONE: (508)359-3876
TELEPHONE: (508)359-3876
TELEPHONE: CRARACTERISTICS:

LENGTH: 90 amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                  US/08/444,818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0110.002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/444,818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Harbin, Alisa A.
REGISTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 011
TELECOMMUNICATION:
TELEPHONE: (508)359-3876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (508)359-3885
INFORMATION FOR SEQ ID NO: 85:
SEQUENCE CHARACTERISTICS:
LENGTH: 106 amino acids
TYPE: amino acid
                                           CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-444-818-87
                                                                  APPLICATION NUMBER:
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-444-818-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY:
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
```

```
1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; MOLECULE TYPE: peptide US-08-483-695-33
  Dunner
              STREET: 1300 - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100 QLRRHIDLLV 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 QLRRHIDLLV 10
ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-07-965-285-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                           Sequence 31, Application US/08483695
Fatent No. 5866139
GENERAL INFORMATION:
APPLICANT: Brechot, Christian
APPLICANT: Rremsdorf, Dina
APPLICANT: Porchon, Colette
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
NUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farabow, Garrett &
ADDRESSEE: Dunner
STREET: 1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Brechot, Christian
APPLICANT: Kremsdorf, Dina
APPLICANT: Kremsdorf, Dina
APPLICANT: Prothon, Colette
TITLE OF INVENTION: Nucleotide and Peptide Sequences of a
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
WUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 49; DB 2; Length 166; 100.0%; Pred. No. 0.063; O. Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Finnegan, Henderson, Farabow, Garrett &
                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/483,695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Meyers, Kenneth J. REGISTRATION NUMBER: 25,146
REFERENCE-YOCKET NUMBER: 05286-0001-00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 18-MAR-1993
APPLICATION NUMBER: FR 91 06 882
FILING DATE: 06-JUN-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 33, Application US/08483695
Patent No. 5866139
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: 31: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 166 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE: 202-101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; MOLECULE TYPE: peptide US-08-483-695-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100 QLRRHIDLLV 109
                                                                                                                                                                                                                                                                                                                                                                                   20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                             STATE: D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-483-695-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
GENERAL INFORMATION:
APPLICANT: Brechot, Christian
APPLICANT: RemaGorf, Dina
APPLICANT: Rockoon, Colette
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
NUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farabow, Garrett &
ADDRESSEE: Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 49; DB 2; Length 166; 100.0%; Pred. No. 0.063;
                                                                                                                       OPERATION SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/483,695
FILING DATE:
CLASSIFICATION:
PRICA APPLICATION DATA:
APPLICATION NUMBER: US/07/965,285
FILING DATE: 06-JUN-1991
ATONNEY/AGENT INFORMATION:
NAME: Moyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 25,146
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEFRAX: 202-408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE: DC
CONNTRY: USA
ZIP: 20005-3315
COMPUTER ERADABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US/07/965,285
FILING DATE: 18-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3, Application US/07965285 Patent No. 5879904
                                                                                               COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
SOFTWARE: Patentin Release #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: 1300 I Street, N.W. CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: 33: SEQUENCE CHARACTERISTICS:
COUNTRY: USA
ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  166 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
```

```
δλ
                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: Brechot, Christian
APPLICANT: Kremedorf, Dina
APPLICANT: Porobon, Colette
TITLE OF INVENTION: Nucleotide and Peptide Sequences of a
TITLE OF INVENTION: Hepatitis C Virus Isolate, Diagnostic and Therapeutic
TITLE OF INVENTION: Applications
NUMBER OF SEQUENCES: 46
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 49; DB 2; Length 166; 100.0%; Pred. No. 0.063; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Finnegan, Henderson, Farabow, Garrett & ADDRESSEE: Dunner
ADDRESSE: 1300 1 Street, N.W.
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: BM PC compatible
COMPUTER: TBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/965,285
FILNG DATE: 18-MAR.1993
CLASSIFICATION: 435
PRIOR APPLICATION UNMER: FR 91 06 882
FILING DATE: 06-JUN-1991
ATTOMENY/AGENT INFORMATION:
AMAGENT INFORMATION:
AMAGENT INFORMATION:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 91 06 882
FILING DATE: 06-JUN-1991
ATTORNEY/AGENT INFORMATION:
NAME: MAYERS, Kenneth J.
REGISTRATION NUMBER: 25,46
REFERENCE/DOCKET NUMBER: 25,46
REFERENCE/DOCKET NUMBER: 205.46
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 166 amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 05286-0001-00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 31, Application US/07965285 Patent No. 5879904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO: 31:
SEQUENCE CHARACTERISTICS:
LENGTH: 166 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 100.0
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear

MOLECULE TYPE: peptide

US-07-965-285-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100 QLRRHIDLLV 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 15
US-07-965-285-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: D
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
```

```
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

Run on:

August 23, 2002, 09:56:43; Search time 78.82 Seconds

(without alignments)
12.191 Million cell updates/sec

US-08-854-825-3 Title:

QLRRHIDLLV 10 Perfect score: Sequence:

Gapop 10.0 , Gapext 0.5 **BLOSUM62** Scoring table:

283138 seqs, 96089334 residues Searched:

Total number of hits satisfying chosen parameters:

length: 0 length: 2000000000 Minimum DB seq Maximum DB seq

Maximum Match 100% Listing first 45 summaries Post-processing: Minimum Match 0%

Database

PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
1: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	ruc	genome polyprotein								genome polyprotein					genome polyprotein	envelope glycoprot	envelope glycoprot	envelope glycoprot	genome polyprotein	envelope protein -	genome polyprotein	polyprotein - hepa	١	prc					
SUMMARIES		50	84	C3	CH	70	65	07	11	77	49	23	41	43	45	46	64	11	65	7.1	07	84	25	26	26	31	32	75	J.	CJ
ß	E	A44150	JQ1584	GNWVC3	GNWVCH	S40770	JN0265	S12707	JH0711	PN0677	S32749	S25123	S32741	S32743	8327	S32746	PS0164	PN0011	PS0165	S21471	PC4407	PC1284	JQ1925	JQ1926	S1987	S18031	S18032	S1987	GNWVTC	GNWVCJ
	DB	7	~	7	7	7	7	7	~	~	~	7	~	7	~	ď	7	7	~	~	~	~	7	~	7	7	7	~	П	Н
	Length	513	640	3011	3011	3011	322	441	550	787	177	177	177	177	177	177	315	315	315	369	415	513	520	523	782	782	782	782	3010	3010
d	Query Match	100.0	100.0	100.0	100.0	100.0	93.9	87.8	85.7	85.7		83.7	83.7		83.7							83.7	83.7	83.7	ω.	83.7	83.7	83.7	83.7	83.7
	Score	49	49	49	49	49	46	43	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	Result No.	1	7	m	4	Ŋ	9	7	80	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29

genome polyprotein genome polyprotein	genome polyprotein genome polyprotein hypothetical prote	probable giycine d B. subtilis yggP h conserved hypothet	hypothetical prote hypothetical prote hypothetical prote	genome polyprotein genome polyprotein henceholden	inflormer procecell division prot
A45573 S18030	GNWVIW PC1303 T26316	G/2518 AI1241 D87244	B84172 E86288 A83229	PC1304 PC1305	S/2/39 H72328 PC2060
	100	7 77 77	000	1000	000
3010	180 428	4/1 512 1000	127 259 389	180	351 411
83.7	79.6	75.5	73.5	71.4	71.4
441	+ 6 6 6 + 6 6 6	37 37	36 36 36	333	9 9 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10 1
30 31	3 8 8 1 2 8 4 1	35 37	8 8 8 9 C	444	4 4 4 5 4 5

ALIGNMENTS

RESULT A44150

```
C;Accession: A44150
R;Ching, W.M.; Wychowski, C.; Beach, M.J.; Wang, H.; Davies, C.L.; Carl, M.; Bradley, Proc. Natl. Acad. Sci. U.S.A. 89, 3190-3194, 1992
A;Title: Interaction of immune sera with synthetic peptides corresponding to the stru A;Reference number: A44150; MUID:92228749
A;Accession: A44150
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
structural protein - hepatitis C virus
C;Species: hepatitis C virus
C;Date: 27-Jun-1994 #sequence_revision 27-Jun-1994 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                              Length 513;
                                                                                                                                                                                                                                   A;Status: preliminary; not compared with conceptual translation A;Molecule type: genomic RNA A;Molecule type: genomic RNA A;Residues: 1-513 <CHI> C;Superfamily: hepatitis C virus genome polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                 5;
                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 49; DB 100.0%; Pred. No. 0.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
```

g

7

C;Accession: J01584 R;Kumar, U.; Cheng, D.; Thomas, H.; Monjardino, J. J. Gen. Virol. 73, 1521-1525, 1992 A;Title: Cloning and sequencing of the structural region and expression of putative c A;Reference number: J01584; MUID:92300349 genome polyprotein - hepatitis C virus (strain U.K.) (fragment)
N;Contains: core protein C; envelope protein E1; envelope protein E2; nonstructural p C;Species: hepatitis C virus
C;Species: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 17-Nov-2000 A;Molecule type: genomic RNA A;Residues: 1-640 <KUM> A;Cross-references: GB:X84079; NID:g643119; PIDN:CAA58888.1; PID:g643120 A; Accession: JQ1584

C; Superfamily: hepatitis C virus genome polyprotein C; Keywords: core protein; envelope protein; glycoprotein; nonstructural protein; poly F;1-1912-191/Product: core protein C *status predicted <CPC> F;192-389/Product: envelope protein El *status predicted <EEI> F;390-640/Product: envelope protein E2 and nonstructural protein NSI *status predicte F;390-640/Product: envelope protein E2 and nonstructural protein NSI *status predicte F;196,209,234,305,417,430,448,476,540,556,576,623/Binding site: carbohydrate (Asn) (c

ö Gaps ; 100.0%; Score 49; DB 2; Length 640; ilarity 100.0%; Pred. No. 0.25; Conservative 0; Mismatches 0; Indels Query Match Best Local Similarity Matches 10; Conserv

```
A; Reference number: A38814
A; Accession: A36814
A; Cross-references: GB: M67463; NID: 9329737; PIDN: AA45534.1; PID: 9329738
A; Trohauspe, G:, Zebedee, S:, Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
Proc. Natl. Acad. Sci. U.S.A. 88, 10292-10296, 1991
A; Title: Genomic structure of the human prototype strain H of hepatitis C virus: comp A; Reference number: A41546; MUID: 92052-10296, 1991
A; Title: Genomic structure of the human prototype strain H of hepatitis C virus: comp A; Note: neither amino acid nor nucleotide sequence is given
C; Superfamily: hepatitis C virus genome Polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; glycoprotein; hydrolase; nonstruct
C; Superfamily: hepatitis C virus genome polyprotein;
C; Superfamily: hepatitis C virus genome polyp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Kestudes: 1-301 COMA,
A; Kestudes: 1-301 COMA,
A; Kestudes: 1-301 COMA,
A; Kestudes: 1-301 COMA,
A; Cross-references: EMBL: D10749; NID:9221586; PIDN:BAA01582.1; PID:9221587
B; Okamoto, H.; Okada, S.; Sugiyama, Y.; Yotsumoto, S.; Tanaka, T.; Yoshizawa, H.; Tsu
Jpn. J. Exp. Med. 60, 167-177, 1990
A; Title: The 5' terminal sequence of the hepatitis C virus genome.
A; Reference number: PC1284; MUID:91013116
A; Accession: PC1285
A; Molecule type: genomic RNA
A; Residues: 1-513 <OK2>
A; Residues: 1-513 <OK2>
A; Residues: 1-513 <OK2>
A; Experimental source: isolate HG-J1; PIDN:BAA00705.1; PID:9221512
A; Experimental source: isolate HG-J1
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: ATP; glycoprotein; M #status predicted <CRC>
F; 2-115/Product: capsid protein C #status predicted <MBE>
F; 116-191/Product: major envelope protein B #status predicted <MBE>
F; 130-729/Product: monstructural protein NS1 #status predicted <NS1>
F; 130-1006/Product: nonstructural protein NS1 #status predicted <NS2>
F; 1307-165/Product: nonstructural protein R3 #status predicted <NS2>
F; 1312-1317/Region: nucleotide-binding motif B
F; 1312-1317/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genome polyprotein - hepatitis C virus
N;Corlains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru
N;Corlains: capsid protein C; envelope protein NS4s; nonstructural protein NS4s; nonstructural protein NS4b; nonstructural protein NS5
C; Species: hepatitis C virus
C; Species: hepatitis C virus
C; Species: 19-may-2000 #sequence_revision 19-may-2000 #text_change 19-Jan-2001
C; Accession: $40770; PC1285
B; Okamoto, H.
R; Okamoto, 
A; Description: Genomic structure of the human prototype strain H of hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 49; DB 1; 100.0%; Pred. No. 1.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: genomic RNA
A; Residues: 1-3011 < OKA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   257 QLRRHIDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: mRNA
A; Residues: 1-3011 CCHO>
A; Cross-references: 1-3011 CCHO>
A; Cross-references: 1-3011 CCHO>
A; Cross-references: B; Momish, F; Holmes, E.C.; Dow, B.; Peutherer, J.F.; Follett, E.; Yap, P.I
J. Gen. Virol. 73, 1131-1141, 1992
A; Title: Analysis of a new hepatitis C virus type and its phylogenetic relationship to e
A; Reference number: P00393; MUID:92268871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A. Molecule type: genomic RNA
A. Residues: 1577-1633 <CH2>
B. A. Experimental source: isolates E-b17
C. Superfamily: hepatitis C virus genome polyprotein
C. Keywords: ATP: capsid protein; envelope protein; glycoprotein; hydrolase; nonstructural
F:11-115/Product: capsid protein C *status predicted <CH2>
F:116-191/Product: envelope protein E *status predicted <MEE>
F:390-729/Product: nonstructural protein NS1 *status predicted <NS1>
F:300-729/Product: hepacivirin *status predicted <NS2>
F:1007-1615/Product: hepacivirin *status predicted <NS3>
F:1312-1317/Region: nucleotide-binding motif B
F:1312-1317/Region: nucleotide-binding motif B
F:1312-1317/Region: nucleotide-binding motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;2034-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2077,22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genome polyprotein - hepatitis C virus (strain H)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu
_protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Species: hepatitis C virus
A; Note: host Homo sapiens (man)
C; Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
C; Accession: A1684; A41546
C; Accession: A1684; A41546
R; Inchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M. submitted to GenBank, July 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 49; DB 1; Length 3011; 100.0%; Pred. No. 1.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: genomic RNA
A; Residues: 1577-1633 <CHA>
A; Cross-references: DDBJ:D10128
A; Experimental source: isolates E-b16
A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.

Best Local Similarity 100.

Matches 10; Conservative
                                                                                                        111111111
257 QLRRHIDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   257 QLRRHIDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GNWVCH
                                                       ò
                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

m

```
A. Molecule type: genomic RNA
A. Residues: 1-550 <LIID
A. Residues: 1-550 <LIID
A. Construction of the nucleotide sequence is not complete
A. Note: the nucleotide sequence is not complete
A. Note: translation of the nucleotide sequence is not complete
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C virus genome polyprotein
C. Reywords: envelope protein: glycoprotein; nonstructural protein; nucleocapsid; poly
F. 1-190/Product: envelope protein El #status predicted <CPC>
F. 191-380/Product: envelope protein E2 or nonstructural protein NS1 (fragment) #status
F. 381-514/Product: envelope protein E2 or nonstructural protein NS5 (fragment) #status
F. 196, 233, 250, 305, 416, 422, 429, 447/Binding site: carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                    genome polyprotein - hepatitis C virus (strain PRC1) (fragments)
N;Contains: envelope protein E1; envelope protein E2; nonstructural protein NS1; nons C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GB:L20498; NID:g1381031; PIDN:AAB02608.1; PID:g1381032
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: glycoprotein; nonstructural protein
F;196,209,234,250,305,325,421,427,452,536,544,560,580,627,649/Binding site: carbohydr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Species: hepatitis C virus.
C;Species: hepatitis C virus.
C;Date: 14-Jul-1994 #sequence_revision 14-Jul-1994 #text_change 17-Nov-2000
C;Accession: PN0677
R;ChO, S.H.; Yoon, J.I.; Chang, J.E.; Ahn, B.M.; Lee, C.H.; Lee, Y.I.
Blochem Biophys. Res. Commun. 196, 780-788, 1993
A;Title: Genomic typing of hepatitis C viruses from Korean patients: Implications A;Reference number: PN0677; MUID:94059104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome polyprotein - hepatitis C virus (isolate RU-1) (fragment)
N;Contains: envelope protein E1
C;Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: Genomic typing of hepatitis C viruses present in China A;Reference number: JH0711; MUID:92290283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 787;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 550;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical protein 787 - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                   C;Accession: JH0711
R;Liu, K.; Hu, Z.; Li, H.; Prince, A.M.; Inchauspe,
Gene 114, 245-250, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 42; DB;
Pred. No. 4.4;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2
6.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 42; DB;
Pred. No. 6.3;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85.7%;
88.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85.7%;
88.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession: PN0677
A; Molecule type: mRNA
A; Residues: 1-787 <CHO>
                                         1111:1111
258 LRRHVDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       :||||||||
258 IRRHIDLLV 266
         2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: JH0711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                         Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                               genome polyprotein - hepatitis C virus (isolate GM2) (fragments)
N;Contains: amino end of envelope protein M; carboxyl end of capsid protein C; fragment C; Species: hepatitis C virus
A; Mote: host Homo sapiens (man)
A; Mote: host Homo sapiens (man)
C; Date: 09-Oct-1992 #sequence_revision 09-Oct-1992 #text_change 17-Nov-2000
C; Accession: JN0265
R; Fuchs, K.; Motez, M.; Schreier, E.; Zachoval, R.; Deinhardt, F.; Roggendorf, M.
A; Title: Characterization of nucleotide sequences from European hepatitis C virus isolat A; Reference number: JN0265; MUID:91365241
A; Accession: JN0265
A; Molecule type: genomic RNA
A; Residues: 1322 <FUC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A.Cross references: GB:M61717; GB:W61718
A.Note: the authors translated the codon ACA for residue 198 as Tyr
A.Note: the authors translated the codon ACA for residue 198 as Tyr
C.Superfamily: hepatitis C virus genome polyprotein
C.Superfamily: hepatitis C virus genome polyprotein;
F.110-178/Product: capsid protein C (fragment) #status predicted <EPM>
F.110-178/Product: major envelope protein E (fragment) #status predicted <ENV>
F.253-269/Domain: transmembrane #status predicted <TM2>
F.191,216/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .;
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hepatitis C virus genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N; Contains: core protein; envelope protein
C; Species: hepatitis C virus
C; Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 17-Nov-2000
C; Accession: S12707
R; Takeuchi, K.; Kubo, Y.; Boonmar, S.; Watanabe, Y.; Katayama, T.; Choo, Q.L.; Kuo, (Mucleic Acids Res. 18, 4626, 1990
A; Title: Nucleotide sequence of core and envelope genes of the hepatitis C virus gene A; Reference number: S12707; MUID:90356432
                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:D00574; NID:g221656; PIDN:BAA00452.1; PID:g221657 C;Superfamily: hepatitis C virus genome polyprotein C;Keywords: polyprotein
                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                           .cn 100.0%; Score 49; DB 1; Length 3011; a Similarity 100.0%; Pred. No. 1.2; 10; Conservative 0; Mismatch...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93.9%; Score 46; DB 2; Length 322; 90.0%; Pred. No. 0.45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 441;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genome polyprotein - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 43; DB 2
Pred. No. 2.3;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87.8%;
88.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 87.8
Best Local Similarity 88.9
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: S12707
A; Molecule type: genomic RNA
A; Residues: 1-441 <TAX>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        111111111
257 QLRRHIDLLV 266
                                                                                                                                                  Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                 1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

oŧ

4

ö

Gaps

ö

Length 177, Indels

2;

```
Second polyprotein - hepatitis C virus (isolate EG-1) (fragment)
N;Contains: envelope protein E1
N;Contains: envelope protein E1
C;Species: hepatitis C virus
A;Variety: isolate EG-1
C;Date: 06-Jan-1995 #sequence_revision 26-Jul-1996 #text_change 17-Nov-2000
C;Dates: 06-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 17-Nov-2000
C;Decreasion: S32743
A;Respectation: Variability of the envelope regions of HCV in Buropean isolates and it A;Residues: 1-177 < RGC>
A;Rolecule type: genomic RNA
A;Residues: 1-177 < RGC>
A;Cross-references: EMBL:X72980; NID:g296104; PIDN:CAA51485.1; PID:g296105
A;Cross-references: EMBL:X72980; NID:g296104; PIDN:CAA51485.1; PID:g296105
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: envelope protein E1 #status predicted <AMAT>
F;1-177/Product: envelope protein E1 #status predicted <AMAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83.7%; Score 41; DB 2; Length 177;
77.8%; Pred. No. 2.2;
.ive 2; Mismatches 0; Indels
                C;Keywords: envelope protein; polyprotein F;1-177/Product: envelope protein El #status predicted <MAT>
                                                                                                                                                                     Score 41; DB 2
Pred. No. 2.2;
2; Mismatches
                                                                                                                                                                     83.7%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83.7%;
77.8%;
                                                                                                                       Query Match
Best Local Similarity 77.8%,
And 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 83.7
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                  2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                               :|||:||||
62 IRRHVDLLV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 :|||:||||
62 IRRHVDLLV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 13
S32743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                  οy
                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Accession: S25123
R; Hoehne, M.; Schreier, E.; Fuchs, K.; Wiese, M.; Deinhardt, F.; Roggendorf, M.
submitted to the EMBL Data Library, April 1992
A; Description: Variability of E 1 gene region of Hepatitis C virus in patients infected A; Reference number: $25123
A; Accession: S25123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Accession: S32741
R;Rogendorf, M.; Lu, M.; Fuchs, G.; Ernst, G.; Hoehne, M.; Schreier, E.
submitted to the EMBL Data Library, February 1993
A;Description: Variability of the envelope regions of HCV in European isolates and its
A;Reference number: S32741
                                                                                                                                                                                                              and its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó
A; Variety: isolate RU-1
C; Date: 06-Jan-1995 #sequence_revision 26-Jul-1996 #text_change 17-Nov-2000
C; Accession: S32749
E; Roggendorf, M.; Lu, M.; Fuchs, G.; Ernst, G.; Hoehne, M.; Schreier, E.
submitted to the EMBL Data Library, February 1993
A; Description: Variability of the envelope regions of HCV in European isolates
A; Reference number: S32741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N;Contrains: envelope protein EI
C;Species: hepatitis C virus
C;Species: h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genome polyprotein - hepatitis C virus (isolate CR-1) (fragment)
N;Contains: envelope protein E1
C;Species: hepatitis C virus
A;Variety: isolate CR-1
C;Date: 06-Jan-1995 #sequence_revision 26-Jul-1996 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                     A Molecule type: genomic RNA
A;Residues: 1-177 <ROG>
A;Cross-references: EMBL:X72975; NID:g296114; PIDN:CAA51480.1; PID:g296115
A;Experimental source: isolate RU-1
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: envelope protein; polyprotein
F;1-177/Product: envelope protein El #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A, Molecule type: genomic RNA
A, Residues: 1-177 <ROG>
A; Cross-references: EMBL: X72978; NID:g296100; PIDN:CAA51483.1; PID:g296101
A; Experimental source: isolate CR-1
C; Superfamily: hepatitis C virus genome polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; CTOSS-Teferences: EMBL:X67299; NID:959470; PIDN:CAA47713.1; PID:959471 C; Superfamily: hepatitis C virus genome polyprotein C; Keywords: envelope protein; polyprotein C; Keywords: envelope protein; polyprotein F:1-177/Product: envelope protein El #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome polyprotein (clone Glob.1) - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Experimental source: isolate CR-1 Superfamily: hepatitis C virus genome polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 41; DB 2;
Pred. No. 2.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 41; DB Pred. No. 2.2; 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83.78;
77.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83.7%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 77.8%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 83.7
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: genomic RNA A; Residues: 1-1.77 <HOE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :111:1111
62 IRRHVDLLV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :|||:||||
62 IRRHVDLLV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: S32741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

ö

Gaps

```
genome polyprotein - hepatitis C virus (isolate EG-2) (fragment)
N;Contains: envelope protein E1
N;Contains: envelope protein E1
N;Contains: hepatitis C virus
A;Variety: isolate EG-2
C;Decies: hepatitis C virus
A;Variety: isolate EG-2
C;Date: O6-Jan-1995 #sequence_revision 26-Jul-1996 #text_change 17-Nov-2000
C;Accession: S32745
R;Roggendorf, M:; Lu, M:; Fuchs, G.; Ernst, G.; Hoehne, M.; Schreier, E.
Submitted to the EMBL Data Library, February 1993
A;Description: Variability of the envelope regions of HCV in European isolates and it
A;Reference number: S32741
A;Reference number: S32741
A;Molecule type: genomic RNA
A;Molecule type: genomic RNA
A;Residues: 1-177 <ROGS
A;Cross-references: EMBL:X72982; NID:9296108; FIDN:CAA51487.1; PID:9296109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Experimental source: isolate EG-2
C; Superfamily: hepatitis C virus genome polyprotein
C: Keywords: envelope protein; polyprotein
F;1-177/Product: envelope protein El #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 41; DB 2;
Pred. No. 2.2;
2; Mismatches (
```

```
RESULT 15
$32746
genome polyprotein - hepatitis C virus (isolate HU-1) (fragment)
N.Contains: envelope protein E1
C;Species: hepatitis C virus
A;Variety: isolate HU-1
C;Bocles: hepatitis C virus
A;Variety: isolate HU-1
C;Date: 06-Jan-1995 #sequence_revision 26-Jul-1996 #text_change 17-Nov-2000
C;Accession: $32746
B;Roggendorf, M.; Lu, M.; Fuchs, G.; Ernst, G.; Hoehne, M.; Schreier, E.
submitted to the ReMEL Data Library, February 1993
A;Description: Variability of the envelope regions of HCV in European isolates A;Reference number: $32741
A;Reference number: $32741
A;Anolecule type: genomic RNA
A;Residues: 1-177 <ROG>
A;Cross_references: EmBL:X72976; NID:g296110; PIDN:CAA51481.1; PID:g296111
A;Experimental source: isolate HU-1
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: envelope protein; polyprotein
F;1-177/Product: envelope protein E1 #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83.7%; Score 41; DB 2; Length 177; 77.8%; Pred. No. 2.2; 0; Indels ive 2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 83.7
Best Local Similarity 77.8
Matches 7; Conservative
```

Search completed: August 23, 2002, 09:56:44 Job time: 134 sec

2 LRRHIDLLV 10 :|||:|||| 62 IRRHVDLLV 70

S q

THIS PAGE BLANK (USPTO)

-

GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

August 23, 2002, 09:55:19 ; Search time 37 Seconds (without alignments) 10.465 Million cell updates/sec Run on:

US-08-854-825-3 49 1 QLRRHIDLLV 10 Title: Perfect score: Sequence: BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

105224 seqs, 38719550 residues Searched:

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_40:*

Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description		79	hepatiti			h genome	þe				P26662 h genome po	Q00269 h genome po	h genome	ar	Q04202 caenorhabdi						-		Q9pjn5 chlamydia m		P45030 haemophilus		neisseria	P15129 rattus norv				27961 hepat	P51523 homo sapien
SUMMARIES	ID	POLG_HCVE1	POLG_HCVH7	POLG_HCVH8	POLG_HCVTH	POLG_HCV1	POLG_HCVH	POLG_HCVJ2	POLG_HCVH4	POLG_HCVHK	POLG_HCVBK	POLG_HCVJA	POLG_HCVJT	POLG_HCVTW	DEFM_ARATH	TC2A_CAEBR	FTSZ_THEMA	DISR_AGKRH	REPC_AGRRH	DHE3_AERPE	Y7J3_ANASP	RNR_CHLPN	YEOK_SCHPO	RL17_CHLMU	Y4OT_RHISN	YRBE_HAEIN	FTSZ_NEIGO	FTSZ_NEIMA	CP4B_RAT	RNR_CHLMU	RNR_CHLTR	POLG_HCVJ5	- 1	ZN84_HUMAN
	Length DB											3010 1					351 1	478 1	405 1					142 1									737 1	738 1
dР	Query Match	100.0	100.0	100.0	100.0	100.0			83.7			83.7					71.4	71	69.4	69.4	69.4	69.4	69.4	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3
	Score	49	49	49	49	49	49	41	41	41	41	41	41	41	36	32	32	35 /	34	34	34	34	34	33	E	33	33	33	33	33	33	33	33	33
	Result No.	-	2	m	4	Ŋ	ø	7	σ.	o i	10	11	12	13	14	15	16	17	18	13	20	21	22	23	74	25	26	27	28	59	30	31	32	33

100.0%; Score 49; DB 1; Length 192; 100.0%; Pred. No. 0.012;

Query Match Best Local Similarity

•		
h genome po h genome po mycoplasma chlamydia t chlamydia p chlamydia p neisseria m homo sapien pseudomonas pseudomonas pseudomonas pseudomonas pseudomonas	rprotein M); Flaviviridae; Tung J., on M., egions of HCV ins and the D COVERED BY A PROTEINS: A COMPLEX OF ough a collaboration e EMBL outstation e EMBL outstation restrictions on its ent is in no way and for commercial isb-sib.ch/announce/	rotein; IAL). E (POTENTIAL). (POTENTIAL). (POTENTIAL). (POTENTIAL). (ACTENTIAL). (ACTENTIAL). (ACTENTIAL). (ACTENTIAL).
P26660 P26661 P48980 P47760 O92789 O91227 P07344 P11081 P11081 O77420	protein N Plaviviric Plaviviric Bajons of PROTEINS: COVERED PROTEINS: COMPLEX	otein; AL). **POTENTIAL) POTENTIAL) POTENTIAL) POTENTIAL) POTENTIAL) **
P22 P24 P24 P24 P27 P27 P27	Hope pro ge; Flav ughton M he regio roteins TWO PRO TWO PRO IS A CO TRA CO THO PRO IS A CO TRA CO TWO PRO TO TWO PRO TO T	Protein. TIAL). (POTE)
	e) Chman K.H., Tu L., Houghton d in the regi d NS1 proteins NUCLEDCAPSID C ISTS OF TWO PR CCAPSID IS A C CAPSID IS A C CAPSID IS A C ICS and the res reduced throug reduced through reduced	HECCCC &
	(Er	Envelope IIN (POTER PROTECTED CONAC
ဟ	odate) update) update) protein (Envel- brotein (Envel- c, no DNA stag noo QL., Houre ce found in the pre and NS1 protect s CONSISTS OF NUCLEOCAPSID commatics and corneatics and cornected and	protein; Envelo, TRIX PROTEIN (PO' JOR ENVELOPE PRO' LINKED (GLCNAC. LINKED (GLCNAC. LINKED (GLCNAC. LINKED (GLCNAC. PROME (GLCNAC. DINKED (GL
UT6 CCA CCA TR CAN CAN CAE CAE CAE		rein; PROT NVEL DD (G D D D (G D D
POLG_HCVJ6 RL17_GHLPN RL17_CHLPN RL17_CHLPN Y109_NBIMB Y109_NBIMB TRPA_PSEAE TRPA_PSEAE TRPA_PSEPI LPXB_AQUAE HEMN_PSEAE	PRT; 1 otation senvelo ins."; S VIRUS S VIRUS E. THE ight. It f Bioin stitute. on ot rem reement reement besibotch	at protein; Envance Branch Bra
POLG_HCVJ6 POLG_HCVJ6 RL17_CHLTR RL17_CHLTN YL19_ONEIMB ARDH_HUMAN TRPA_PSEAE TRPA_PSEAE TRPA_PSEBU TRPA_PSEBU TRPA_PSEBU TRPA_PSEBU HPMN_PSEBS	reated) ast sequence up dast dast dast dast dast dast dast dast	Coat Coat MAJ MAJ N-L N-L N-L N-L N-L
ппппппппппппппппппппппппппппппппппппппп	st seate st	core n, 1,Cor n,Cor n,Cor n,Cor
0333 0333 1141 142 196 2268 2269 460	ULT 1 G_HCVEL POLG_HCVEL POLG_HCVEL POLG_HCVEL POLG_HCVEL STANDARD; PRT; 192 AA. P27954; 01-AUG1992 (Rel. 23, Last sequence update) 16-OCT-2001 (Rel. 40, Last annotation update) 16-OCT-2001 (Rel. 40, Last annotation update) Genome polyprotein [Contains: Matrix protein (Major envelope protein E] (Fragment). Hepatists C virus (isolate EC1) (HCV). Viruses; SSRNA positive-strand viruses, no DNA Hepacivirus. NCBI_TAXID=11107; [1] SEQUENCE FROM N.A. MEDLINE-9112009; PubMed=1846505; Weiner A.J. Brauer M.J. Rosenblatt J., Richmicrawford K., Bonino F., Saracco G., Choo QL. Han J.H.; Variable and hypervariable domains are found corresponding to the flavivirus envelope and N pestivirus envelope glycoproteins."; Virology 180:842-848(1991)	EMBL; X53135; CAA37295.1; - InterPro; IPR002521; HCV_cc Pfam; PF01542; HCV_core; J. Polyprotein; Glycoprotein; Polyprotein; Glycoprotein; Transmembrane. NON_TER
mm	AND 23 23 23 23 23 23 24 40 61 61 61 61 61 61 61 61 61 61 61 61 61	21; 21; 19; 19; V_c opro
m m m m m m m m m m m	STANE (Rel. 23 (Rel. 24) (Rel. 46 (Rel	CAA (0025 (0
647 647 647 647 647 647 647 647 647 647	121 (Re. 1992 (R	35; FPRO FPRO 17, 539; 10, 539; 11, 11, 11, 11, 11, 11, 11, 11, 11, 11,
00000000000000000000000000000000000000	HGVE1 POLG_HGVE1 POLG_	EMBL, X53135, InterPro; IPRO INTER INTE
	TAGORA JAME SSHO MUSODHKKI WADDHJE	InterProperty InterProperty InterProperty InterProperty Property Property Property InterProperty InterProperty InterProperty CARBOHYD CARBOHYD CARBOHYD CARBOHYD CARBOHYD CARBOHYD NON_TER SEQUENCE
333 332 332 332 332 332 332 332 332 332	RESULT 1 ID POLG_HCVE1 AC P2795 AC P2795 AC P2795 AC D1-AU DT 16-OC DT 66-OC DT 66-OC DT 16-OC DT 16-OC DT 16-OC DT 16-OC DT 16-OC DT 16-OC AC HEPAC AC MEDIA RR MEDIA RR MEDIA RR MEDIA RR HAN J RR CARWE RR HAN J RR COTTE DC 1-C D	EMBL; X5 InterPro InterPro InterPro Pfam: PF Pfam: PF Polyprot Transmem Transmem CHAIN CHAIN CHAIN CARBOHYD CARBOHYD CARBOHYD CARBOHYD NON_TER SEQUENCE SEQUENCE
	PRESULT TO THE PRESUL	ج
		, пппппххпптририро

~

Matches

POLG_HCVH7

a

ô

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSILEZ (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN BY WELGAPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                         Han J.H.;
"Variable and hypervariable domains are found in the regions of HCV corresponding to the flavivirus envelope and NSI proteins and the pestivirus envelope glycoproteins."; Virology 180:842-848(1991).
                                                                                                  01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Matrix protein (Envelope protein M);
Major envelope protein E; Nonstructural protein NS1] (Fragment).
Hepatitis C virus (isolate HCT18) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                           SECUENCE FROM N.A.
MEDLINE=91112009; PubMed=1846505;
Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J.,
Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 49; DB 1; Length 321; Pred. No. 0.022;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2F5DE79F7C7845C8 CRC64;
                                           321 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   321 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro: IPR002531; HCV_NSI.
InterPro: IPR002531; HCV_core.
InterPro: IPR002519; HCV_core.
Pfam: PP01542; HCV_core; 1.
Pfam: PP01560; HCV_env; 1.
Pr0Dm: PP0186062; HCV_NSI; 1.
Pr0Dm: PD186062; HCV_NSI; 1.
Pr0Jyprotein; 61ycoprotein; Coat protein; Transmembrane; Nonstructural protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Scr
100.0%; Pri
                                                                                01-AUG-1992 (Rel. 23, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34238 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; X53131; CAA37291.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      76
267
267
>321
80
93
118
189
301
307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 QLRRHIDLLV 10
                                                                                                                                                                                                                                          NCBI_TaxID=11110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           268
80
93
                                                                                                                                                                                                                       Hepacivirus
                                         POLG_HCVH8
P27956;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POLG_HCVTH
ID POLG_HCVTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
  RESULT 3
POLG_HCVH8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licensedisb-sib.ch).
    ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN G (POTENTIAL).
NONSTRUCTURAL PROTEIN NSJ/E2 (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                    01-AUG-1992 (Rel. 23, Last sequence update)
16-CCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Matrix protein (Envelope protein M);
Major envelope protein E; Nonstructural protein NS1] (Fragment).
Hepatitis C virus (isolate HCT27) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Variable and hypervariable domains are found in the regions of HC corresponding to the flavivirus envelope and NS1 proteins and the pestivirus envelope glycoproteins."; Virology 180:842-848(1991).
                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE=91112009; Pubmed=1846505; Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J., Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 49; DB 1; Length 309; 100.0%; Pred. No. 0.021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01560; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein; Transmembrane; Nonstructural protein.
    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6E858E9C3D0B9EA9 CRC64;
  ;
                                                                                                                                                                                309 AA.
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; X53133; CAA37293.1; -.
InterPro; IPR002531; HCV_NS1.
InterPro; IPR002521; HCV_Core.
InterPro; IPR002519; HCV_env.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_env; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
  ..
0
                                                                                                                                                                                                               01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last seq
16-OCT-2001 (Rel. 40, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32922 MW;
10; Conservative
                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             255
>309
>68
81
106
                                                           129 QLRRHIDLLV 138
                                       1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           309 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sest Local Similarity
                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=11109;
                                                                                                                                                                                                                                                                                                                                                             Hepacivirus
                                                                                                                                                                          POLG_HCVH7
P27955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Han J.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON_TER
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
```

CHAIN

Matches

ð qq

ö

Gaps

.. 0

0; Indels

```
Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       efam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            etam;
 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation. the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                    ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
     01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
6600me polyprotein (Contains: Matrix protein (Envelope protein M);
Major envelope protein E; Nonstructural protein NS1] (Fragment).
Hepatitis C virus (isolate TH) (HCV).
Viruses: SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL)
                                                                                                         SEQUENCE FROM N.A.
MEDLINE=91112009; PubMed=1846505;
Weiner A.J., Brauer M.J., Rosenblatt J., Richman K.H., Tung J.,
Crawford K., Bonino F., Saracco G., Choo Q.-L., Houghton M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ...) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 49; DB 1; Length 321; 100.0%; Pred. No. 0.022;
                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01560; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B2EB83F521C3B520 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POLG HCV1 STANDARD; PRT; 3011 AA. P26664; 01-AUG-1992 (Rel. 23, Created) 01-AUG-1992 (Rel. 23, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                             Nonstructural protein.
                                                                                                                                                                                                                                                                                                                                 EMBL; X53134; CAA37294.1; -. InterPro; IPR002531; HCV_NS1. InterPro; IPR002521; HCV_core. InterPro; IPR002519; HCV_core. Pfam; PF01343; HCV_core; 1. Pfam; PF01343; HCV_core; 1. Pfam; PF01560; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ·
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            34074 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141 QLRRHIDLLV 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            321 AA;
                                                                                     NCBI_TaxID=11117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 <1
    76
    76
    268
    80
    93
    118
    189
    301
    314
321</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                             Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POLG_HCV1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ü
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7: Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate 1) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -1- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.

-1- SUBGNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN M AND GIXCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN CAND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMART; SMO0492; HELICG3; 1. Pransferase; RNA-directed RNA polymerase; Polyprotein; Glycoprotein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Choo Q.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C., Gallegos C., Coit D., Medina-Selby A., Barr P.J., Weiner A.J., Bradley D.W., Kuo G., Houghton M.;
Bradley D.W., Kuo G., Houghton M.;
"Genetic organization and diversity of the hepatitis C virus.";
Proc. Natl. Acad. Sci. U.S.A. 88:2451-2455(1991).
-!- FUNCTION: THE SMALL PROTEINS NS2B, NS2B, NS4B AND NS4B ANE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE=91172826; PubMed=1848704;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
InterPro; IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HCV_NS4b.
HCV_NS5a.
HCV_RdRP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF01506; HCV_NS5a; 1.
PF00998; HCV_RGRP; 1.
PF00271; helicase_C; 1.
; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HCV_NS3.
HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; M62321; AAA45676.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HCV_NS3; 1.
HCV_NS4a; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HCV_NS4b; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_core;
HCV_env;
HCV_NSI;
HCV_NSI;
HCV_NS2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR000745; H
InterPro; IPR001490; H
InterPro; IPR002868; H
InterPro; IPR002166; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GNWVC3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=11104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEROPS; S29.001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PF01560;
PF01538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEROPS; U39.001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PF01539;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF02907;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF01006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF01001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PF00998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00271;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A39166;
                                                                                                                                                                                                                                                                                                                                                 Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProDom;
```

```
ö
                               CAPSID PROTEIN ( POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELORE PROTEIN E ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 ( POTENTIAL).
PROTEASE/HELICASE NS3 ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B ( POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-40G-1992 (Rel. 23, Created)
01-40G-1992 (Rel. 23, Last sequence update)
01-60C7-2001 (Rel. 40, Last amoutation update)
6-6C7-2001 (Rel. 40, Last amoutation update)
6-60G-10 (Rel. 70, Last amoutation update)
6-60G-10 (Rel. 70, Last amoutation Rel. 60, Rel. 70, Rel. 60, Rel. 70, Rel. 70, Ronstructural protein R2 (GP63) (GP95); Envelope glycoprotein E2 (GP63) (GP95); Envelope glycoprotein E2 (GP63) (GP96) (R81); Protease/helicase NS3 (P70) (Hepacivirin)
6-6C 3.4.21.98); Nonstructural protein NS48 (P4); Nonstructural protein NS58 (P56), Rel. 70, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasoff M., Prince A.M.; "Genomic structure of the human prototype strain H of hepatitis C
 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                          SIMILARITY). SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 49; DB 1; Length 3011; 100.0%; Pred. No. 0.27; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                           (BY
(BY
(BY
                   CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED (GLCNAC. . . . . . . . . . 65F8C9447FCE5AF9
                                                                                                                                                                                                                         CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                    N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                               ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT; 3011 AA
                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-92052256; PubMed-1658800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              327197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                          1107
1165
1237
1319
196
209
234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                111111111
257 QLRRHIDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=11108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVH
P27958;
                                                                                                                                                                                                   TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
INIT_MET
                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                         CHAIN
                                                                                                            CHAIN
                                                                                                                                                                  CHAIN
                                                                                             CHAIN
                                                                                                                                                   CHAIN
                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 6
POLG_HCVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                           MEDLINE-97331322; PubMed-9187654; Yao N., Hosson T., Cable M., Hong Z., Kwong A.D., Le H.V., Weber P.C.; "Structure of the hepatitis C virus RNA helicase domain."; Nat. Struct. Biol. 4:463-467(1997).
                                                                                                                                                                                                                                      oligonucleotide: the crystal structure provides insights into the mode
                                                                                                                                                                                                                                                                                                                                                                     -:- FUNCTION: OS BEENS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.
-:- FUNCTION: NS5B IS A RNA-DEPENDENT RNA POLYMERASE THAT PLAYS AN ESSENTIAL ROLE IN THE VIROS REPLICATION.
-:- CATALYTIC ACTIVITY: HYDROLYSIS OF FOUR PEPTIGE bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.
-:- SUBBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPPOPROTEIN ENVELOPE CONSISTS OF TWO PROTEINS: E1 AND E2. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
-:- PTM: THE STRUCTURAL PROTEINS C, E1 AND E2 ARE PRODUCED BY PROTEOLYTIC PROCESSING BY THE HOST SIGNAL PEPTIDASES.
-:- SIMILARITY: THE NS3 PROTEASE BELONGS TO PEPTIDASE FAMILY C18.
                                                                                                                                                                                                                                                                                        -!- FUNCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3-
-!- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF
NS3-NS4A, NS4A-NS4B, NS4D-NS5A AND NS5A-NS5B.
-!- FUNCTION: NS4A FORMS, A COMPLEX WITH NS3 AND IS ESSENTIAL FOR THE
                                                                                                                                                                   MEDLINE-98154321; PubMed-9493270;
Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A.,
Murcko M.A., Lin C., Caron P.R.;
"Hepatitis C virus NS3 RNA helicase domain with a bound
virus: comparison with American and Japanese isolates.";
Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991).
                                                   X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657.
                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HCV_NS5a.
HCV_RdRP.
HCV_capsid.
HCV_core.
HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS1.
HCV_NS2.
HCV_NS3.
HCV_NS4a.
HCV_NS4b.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PF01543; HCV_capsid; 1.

; PF01542; HCV_core; 1.

; PF01539; HCV_env; 1.

; PF01560; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; M67463; AAA45534.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_NS5a; 1.
HCV_RdRP; 1.
helicase_C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCV_core; 1
HCV_env; 1.
HCV_NS1; 1.
HCV_NS2; 1.
HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HCV_NS4a;
HCV_NS4b;
                                                                                                                                                                                                                                                      of unwinding.";
Structure 6:89-100(1998)
                                                                                                                                                                                                                                                                                                                                                            ACTIVATION OF NS3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002519;
InterPro; IPR001650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR002868;
InterPro; IPR002166;
InterPro; IPR002522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PDB; 1HEI; 25-NOV-98.
PDB; 1A1V; 16-FEB-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR004109;
InterPro; IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002521;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GNWVCH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PF01538; PF02907; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF01506;
PF00998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PF01001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF00271;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; A36814;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
```

S

```
Virology 188:331-341(1992)
                                                                                                                                                        EMBL; D10074; BAA00968.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 77.0
77. Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :|||:||||
258 IRRHVDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=31643;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLG_HCVH4
Q01404;
                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                         TRANSMEM
                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVH4
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OC OC OE DE DI
                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PDIG_HCVJ2 STANDARD; PRT; 513 AA.
P27959;
01-ANG-1992 (Rel. 23, Created)
01-ANG-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
Hepatitis C virus (isolate HC-J2) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                 Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                          SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.

MEDLINE-92320323. PubMed=1314459;
Okamoto H., Kurai K., Okada S.I., Yamamoto K., Lizuka H.,
Tanaka T., Fukuda S., Tsuda F., Mishiro S.;
Fill:-length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct genotypes.";
                                                                                                                                                                                                                                                                                                                        (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                          ;;
                                                       REMOVED FROM CAPSID PROTEIN C BY
                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 49; DB 1; Length 3011; 100.0%; Pred. No. 0.27;
                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                    PROTEASE/HELICASE NS3.
NONSTRUCTURAL PROTEIN NS4A.
NONSTRUCTURAL PROTEIN NS4B.
                                                                                                                                                                                                                                                                                                                                                    INKED (GLCNAC. . .) (POT 772CBB29CCD94753 CRC64;
                                                                                                                                               NONSTRUCTURAL PROTEIN NS5A NONSTRUCTURAL PROTEIN NS5B.
                                                                                                            NONSTRUCTURAL PROTEIN NS2.
                                                                                 ENVELOPE GLYCOPROTEIN E1
ENVELOPE GLYCOPROTEIN E2
                                                                                                                                                                          (BY
(BY
(BY
                                                               CELLULAR AMINOPEPTIDASE
                                                                                                                                                                POTENTIAL.
CHARGE RELAY SYSTEM (1
CHARGE RELAY SYSTEM (1
CHARGE RELAY SYSTEM (1
                                                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                                                                    (GLCNAC.
                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                          (GLCNAC.
                                                                         CAPSID PROTEIN C
                                                                                                                                                                                                   ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                       (GLCNAC
                                                                                                                                                                                                                                 (GLCNAC
                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                   PROTEIN P7
                                                                                                                                                                                                                               N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                        N-LINKED
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                            327142
           SM00492; HELICC3;
                                                                                                                                                                                                                                                                                                                                                                                                         10; Conservative
                                                                                                                                                                369
1083
1107
                                                                                                                                                                                           1165
1237
                                                                                                                                                                                                                                                                                                                                                             A
;
                                                                                                                                                                                                                                                                                                                                                                                                                                      111111111
257 QLRRHIDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                           1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=11111;
                                             3D-structure.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepacivirus
                                                                                                                                                                 TRANSMEM
ACT_SITE
                                                                                                                                                                                           ACT_SITE
NP_BIND
                                                                                                                                                                                                             SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                   ACT_SITE
                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
          SMART;
                                                                                                                                      CHAIN
CHAIN
CHAIN
                                                                                                   CHAIN
CHAIN
CHAIN
                                                                                                                              CHAIN
                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                 Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POLG_HCVJ2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@illower.).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                               V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
Envelope plyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1)] (Fragment)
-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSTILE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY LIPOPROTEIN ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN MEM GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus (isolate HCV-476) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR00253; HCV_MSI;
InterPro; IPR00253; HCV_Capsid.
InterPro; IPR00252; HCV_Capsid.
InterPro; IPR00252; HCV_core.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core; 1.
Pfam; PF01549; HCV_core; 1.
Pfam; PF01549; HCV_core; 1.
Probom; PP0186065; HCV_NSI; 1.
Probom; PD186065; HCV_NSI; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
Transmembrane; Nonstructural protein.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CELULAR AMINOPEPTIOASE.
CAPSID PROTEIN (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83.7%; Score 41; DB 1; Length 513; 77.8%; Pred. No. 1.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    943F31E3514CDEF3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 1.4;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55704 MW;
```

9

```
NCBI_TaxID=31644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLG_HCVBK
ID POLG_E
AC P26663
DT 01-AUG
DT 01-AUG
DT 16-OCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
   g
                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
BY SIMILARITY.
N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
66-OCT-2001 (Rel. 40, Last annotation update)
66-OCT-2001 (Rel. 40, Last annotation update)
66-OCT-2001 (Rel. 40, Last annotation update)
67-001 (Sel. 40, Last annotation update)
67-001 (Sel. 40, Last annotation (P22);
67-001 (Sel. 40, Last anno
                                                                                                                                                       V
                               MEDINE-93019030; PubMed=1383400;
Abe K., Inchauspe G., Fujisawa K.;
"Genomic characterization and mutation rate of hepatitis C virus isolated from a patient who contracted hepatitis during an epidemic of non-A, non-B hepatitis in Japan.";
J. Gen. Virol. 73:2725-2729(1992).
-!- SUBUNIT THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN A AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                             R InterPro; IPR002531; HCV_capsid.
R InterPro; IPR002522; HCV_capsid.
R InterPro; IPR002522; HCV_capsid.
R InterPro; IPR002512; HCV_capsid.
R InterPro; IPR002519; HCV_core.
R InterPro; IPR002519; HCV_core.
R Pfam; PF01542; HCV_core; 1.
R Pfam; PF01543; HCV_NS1; 1.
R ProDom; PF01560; HCV_NS1; 1.
R ProDom; PF0186062; HCV_NS1; 1.
R ProDom; PF0186062; HCV_NS1; 1.
R Proportein; Glycoprotein; Coat protein; Envelope protein;
R Promomentane Nonstructural protein.
R INTR_MET 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 520;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA135246CF20D525 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 41; DB 1;
Pred. No. 1.4;
}; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83.78;
77.88;
                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; D10688; BAA01530.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match 83.7
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115
191
191
383
369
369
196
209
234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196
209
209
305
418
424
431
520
520 AA;
[1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :|||:||||
258 IRRHVDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 9
POLG_HCVHK
ID POLG_HCVHK
AC Q01403;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ď
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AC DE DIT OC OC OC OC
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modifited and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
BY SIMILARITY.
                                                                                                                                                                                                              ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-CGT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
                                                    Abe K., Inchauspe G., Fujisawa K.;
"Genomic characterization and mutation rate of hepatitis C virus isolated from a patient who contracted hepatitis during an epidemic of non-A, non-B hepatitis in Japan.";
J. Gen. Virol. 73:2725-2729(1992).
-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLECCAPSID COVERED BY A LIPOPROTEIN BAVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN M AND GLYCOPROTEIN E. THE NUCLECCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Transmembrane; Nonstructural protein.
INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfan; PF01560; HCV_NS1; 1.
ProDom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Coat protein; Envelope protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 520;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MW; 1D2BD0A6FF27349B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83.7%; Score 41; DB 1;
77.8%; Pred. No. 1.4;
ive 2; Mismatches (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTR; J01925; J01925.
InterPro; IPR002531; HCV_NS1.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_core.
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01539; HCV_core; 1.
                              MEDLINE=93019030; PubMed=1383400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; D10687; BAA01529.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
7; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             449
520
520 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      :|||:||||
258 IRRHVDLLV 266
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLG_HCVBK
P26663;
```

IPR001490;

```
8.4444444444444444444444444444444444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isp-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.

X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.

RA Steinkuehler C., Tomei L., de Francesco R., Kuo L.C., Chen Z.;

A Steinkuehler C., Tomei L., de Francesco R., Kuo L.C., Chen Z.;

RT "Complex of N33 protease and N34 peptide of BK strain hepatitis C virus: a 2.2-A resolution structure in a hexagonal crystal form.";

RT VIRUS: a 2.2-A resolution structure in a hexagonal crystal form.";

RT VIRUS: a 2.2-A resolution structure in a hexagonal crystal form.";

RT VIRUS: a 2.2-A resolution structure in a hexagonal crystal form.";

PROPEINON: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

C -1- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.

C -1- SUBGNIT: THE VIRION OF THIS VIRUS IS A NUCLECCARSID COVERED BY A LIPOPROFIEIN ENVELOPE. THE ENVELOPE COMPLEX OF PROTEINS:

PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCARSID IS A COMPLEX OF PROTEIN M PROPERTY CONTINES.
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2 (GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21) (EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin) (EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS5A (P6); Nonstructural protein NS5A (P6); Nonstructural protein NS5A (P6); Nonstructural protein NS5A (P6); Nonstructural protein Hepatitis C virus (Isolate BK) (HCV).
                                                                                                                                                                               MEDLINE=91140698; PubMed=1847440;
MEDLINE=91140698; PubMed=1847440;
Takamizawa A., Mori C., Fuke I., Manabe S., Murakami S., Fujita J.,
Onishi E., Andoh T., Yoshida I., Okayama H.;
"Structure and organization of the hepatitis C virus genome isolated
from human carriers.";
                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS) OF 1027-1215.

MEDLINE-SP01508B; Pubmed-e861916;

LOVE R.A., Parge H.E., Wickersham J.A., Hostomsky Z., Habuka N.,

Moomaw E.W., Adachi T., Hostomska Z.;

The crystal structure of hepatitis C virus NS3 proteinase reveals

trypsin-like fold and a structural zinc binding site.";
                                                                                                                                                                                                                                                                                                                               MEDLINE=96235224; PubMed=8647104;
Borowski P., Heiland M., Oehlmann K., Becker B., Korneteky L.;
Won-structural protein 3 of hepatitis C virus inhibits
phosphorylation mediated by CAMP-dependent protein kinase.";
Eur. J. Blochem. 237:611-618(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS1.
HCV_NS2.
HCV_NS3.
                                                                                                                                                                                                                                                                                    Virol. 65:1105-1113(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; MS8335; AAA72945.1; -. PDIR; A38465; GNWVTC. PDB; 1A10; 25-MAR-98. PDB; 1JXP; 14-JAN-98. PDB; 1NS3; 08-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001410; DEAD.
InterPro; IPR002531; HCV_N
InterPro; IPR002518; HCV_N
                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 1487-1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR004109;
InterPro; IPR000745;
                                                                                                                                                 NCBI_TaxID=11105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                     Hepacivirus
```

```
ö
                                                                                                                                                                                                                                                                                       REMOVED FROM CAPSID PROTEIN C BY THE CELLULAR AMINOEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
MAJOR ENVELOPE PROTEIN NSI/EZ (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/EZ (POTENTIAL).
PROYERASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                  Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                       Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83.7%; Score 41; DB 1; Length 3010; 77.8%; Pred. No. 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F8422D5ECCFDFD9C
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
IPR002868; HCV_NS5a.
IPR002166; HCV_RdRP.
IPR002522; HCV_capsid.
IPR002521; HCV_core.
                                                    HCV_env.
Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5;
                                                                             Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_env; 1.
                                                                                                                                                                                  HCV_NS5a; 1.
HCV_RdRP; 1.
helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     327189
                                                                                                       HCV_env; 1.

HCV_NS1; 1.

HCV_NS2; 1.

HCV_NS3; 1.

HCV_NS44; 1.

HCV_NS4b; 1.
                                                                                                                                                                                                                          ProDom; PD186062; HCV_NS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 83.7
Best Local Similarity 77.8
Matches 7; Conservative
                                                    IPR002519;
IPR001650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :||:||:|||
258 IRRHVDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 LRRHIDLLV 10
                                                                                                                               PF01538;
PF02907;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1107
1165
1230
1316
1316
196
209
234
234
250
305
                                                                                                                                                                                             PF00998;
                                                                                                                                                                                                               PF00271;
                                                                                                                    PF01560;
                                                                                                                                                          Pfam; PF01006;
                                                                                                                                                                      PF01001;
                                                                                                                                                                                                                                                                             3D-structure.
INIT_MET
                          InterPro;
InterPro;
                                                     InterPro;
                                                                InterPro;
InterPro;
             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                       PRANSMEM
                                                                                                                                 Pfam;
Pfam;
                                                                                                                    ·fam;
                                                                                                                                                                      Pfam;
                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                               Pfam;
                                                                                                                                                                                                                                                                                                                     CHAIN
```

11 RESULT œ

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                      01-A0G-1992 (Rel. 2), Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation Education Education Education (GP68) (GP70) (NS1); Protein P7: Nonstructural protein NS4 (P4); Nonstructural protein NS4 (P4); Nonstructural protein NS5 (P56); Nonstructural protein NS5 (P56); Nonstructural protein NS5 (P56); Nonstructural protein NS5 (P56); Roll (Rel. 40, Rel. 40, 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Molecular cloning of the human hepatitis C virus genome from Japanese patients with non-A, non-B hepatitis.";
Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISCUSSION OF SEQUENCE.
MEDIINE-91192160; PubMed-1849488;
Kato N., Hilikata M., Nakagawa M., Ootsuyama Y., Muraiso K.,
Ohkoshi S., Shimotohno K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDILINE-91088550; PubMed-2175903;
Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi S.,
Sugimura T., Shimotohno K.;
    3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR004109; HCV_NS3.
InterPro; IPR000445; HCV_NS4a.
InterPro; IPR001490; HCV_NS4b.
InterPro; IPR002868; HCV_NS4b.
InterPro; IPR002166; HCV_RdRP.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                         01-AUG-1992 (Rel. 23, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_NS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1. Pfam; PF01539; HCV_env; 1. Pfam; PF01560; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; D90208; BAA14233.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; A39253; GNWVCJ.
HSSP; P26663; 1JXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; GNWVCJ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=11116;
POLG_HCVJA
P26662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus
                                        DE PER PRESENTATION OF THE PROPERTY OF THE PRO
```

```
ó
                                                                    01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
16-0CT-2001 (Rel. 40, Last annotation update)
16-0CT-2001 (Rel. 40, Last annotation update)
66nome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NSAA (P4); Nonstructural protein
NSAB (P27); Nonstructural protein NSSA (P65); Nonstructural protein
NSSB (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                      (BY SIMILARITY)
(BY SIMILARITY)
(BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .;
0
                                                                                                                                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                 ( POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 3010; 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                    CHARGE RELAY SYSTEM ()
CHARGE RELAY SYSTEM ()
CHARGE RELAY SYSTEM ()
ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                   (GLCNAC....
(GLCNAC....
                                                                                                                                                                                                                                                                                                                                                                                                                                    AA993794F46DB185
                                                                                                                                                                                                                                                                                                                                                                                        GLCNAC. .
                                                                                                                                                                                                                                                                                                                         (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                       GLCNAC.
                                                                                                                                                                                                                                                                    N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                               GLCNAC.
                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                 GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                           GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 41;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (
N-LINKED (
N-LINKED (
N-LINKED (
                                                                                                                                                                                                                                                                                                                                                   N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                N-LINKED
                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                  N-LINKED
                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                 2240 N-L
2788 N-L
AA; 327017 MW;
               Pfam; PF01006; HCV_NS4a; 1.
Pfam; PF01001; HCV_NS4b; 1.
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00998; HCV_RGRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               83.78;
77.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 83.7
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                       729
1006
11615
12615
2013
3010
369
11007
11165
11165
1219
209
209
209
234
413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :|||:||||
258 IRRHVDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLG_HCVJT
Q00269;
                                                                                                                                                                                                              TRANSMEM
ACT_SITE
                                                                                                                                                                                                                                         ACT_SITE
NP_BIND
                                                                                                                                                                                                                                ACT_SITE
                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLG_HCVJT
δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ib-sib.ch).
                                                                                                                               MEDLINE-92295714; PubMed=1318627;
MEDLINE-92295714; PubMed=1318627;
MEDLINE-92295714; PubMed=1318627;
MARAZAWA T., Nato N., Nakagawa M., Cotsuyama Y., Cho M.J.,
Nakazawa T., Hijkata M., Ishimura Y., Shimotchno K.;
"Molecular cloning of hepatitis C virus genome from a single Japanese carier: sequence variation within the same individual and among infected individuals.";

Virus Res. 23:39-53(1992)

Use Res. 23:39-53(1992)

LEUNTON: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
C-1 CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pl and Ser or Ala in Pl'.
C-1 SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSJ/E2 (POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
                          Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein; Hydrolase; Serine protease.
REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CELLULAR AMINOPEPTIDASE.
Hepatitis C virus (isolate HC-JT) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR00110; HCV_NS3.
InterPro; IPR000145; HCV_NS4a.
InterPro; IPR001465; HCV_NS4b.
InterPro; IPR002868; HCV_NS5a.
InterPro; IPR002523; HCV_CapSid.
InterPro; IPR002523; HCV_CapSid.
InterPro; IPR002521; HCV_CapSid.
InterPro; IPR002521; HCV_CapSid.
InterPro; IPR002521; HCV_CapSid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF01543; HCV_copsid; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_core; 1.
Pfam; PF01550; HCV_NS1; 1.
Pfam; PF01560; HCV_NS2; 1.
Pfam; PF02907; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HCV_NS1.
HCV_NS2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; D11168; BAA01943.1; -. PIR; A45573; A45573.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nonstructural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HCV_NS4a; 1.
HCV_NS4b; 1.
HCV_NS5a; 1.
HCV_RGRP; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SM00492; HELICC3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     115
191
383
729
1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEROPS; P26663; 1JXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                   NCBI_TaxID=31642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01539; Higher, PF0156; Higher, PF0156; Higher, PF0156; Higher, PF01006; Higher, PF01506; Higher, PF00151; higher, PF00151; Higher, PF00151; Higher, PF01506; Higher, PF0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
192
384
730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ransmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
```

```
01-APR.1993 (Rel. 25, Created)
01-APR.1993 (Rel. 26, Last sequence update)
01-APR.1993 (Rel. 26, Last sequence update)
01-APR.1993 (Rel. 40, Last aenoctation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3 4.21.98); Nonstructural protein NS48 (P4); Nonstructural protein
NS48 (P27); Nonstructural protein NS54 (P56); Nonstructural protein
NS58 (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Taiwan) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                Gaps
                                              SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                   POTENTIAL)
                                                                                                                                                                                                                                                                                                                                              ó
                                                                                                                                     POTENTIAL)
                                                                                                                                              POTENTIAL)
                                                                                                                                                                  POTENTIAL)
                                                                                                                                                                                              POTENTIAL)
                                                                                                                                                                                                                POTENTIAL)
                                                                                                                                                                                                                           POTENTIAL)
                                                                                                                                                                                                                                               POTENTIAL)
                                                                                                                                                                                                                                                        POTENTIAL)
                                                                                                                                                                                                                                                                  POTENTIAL)
PROTEASE/HELICASE NS3 (POTENTIAL)
                                                                                                                 POTENTIAL)
                                                                                                                            POTENTIAL)
                                                                                                                                                        POTENTIAL)
                                                                                                                                                                           POTENTIAL)
                                                                                                                                                                                    POTENTIAL
                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                        POTENT:
                                                                                                                                                                                                                                                                                                                          Score 41; DB 1; Length 3010;
Pred. No. 10;
                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                     NKED (GLCNAC. . .) (POT: 94A1C77435D642BB CRC64;
                                               (BY
(BY
(BY
                                              CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                GLCNAC.
                                                                                                                                                                                                                                   N-LINKED (GLCNAC. N-LINKED (GLCNAC.
                                                                           ATP (POTENTIAL).
DECH BOX.
                                                                                              N-LINKED (GLCNAC N-LINKED (GLCNAC
                                                                                                                                     (GLCNAC
                                                                                                                                                        (GLCNAC.
                                                                                                                                                                 (GLCNAC
                                                                                                                                                                                                                           (GLCNAC.
                                                                                                                                                                                    (GLCNAC
                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                       N-LINKED (GLCNAC N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                               N-LINKED
                                     POTENTIAL.
                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                           83.78;
77.88;
                                                                                                                                                                                                                                                                                               326573
                                                                                                                                                                                                                                                                                                                           Query Match 83.7
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                      2077
2240
2529
2788
                                                                                                                                                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                                                   258 IRRHVDLLV 266
                                                                                                                                                                                                                                                                                                                                                                  2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=31645;
                                                                                                                                                                                                                                   645
2041
2077
2240
2529
2788
3010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                    POLG_HCVTW
                                              ACT_SITE
ACT_SITE
                                                                 ACT_SITE
NP_BIND
                                                                                              CARBOHYD
                                                                                                                           CARBOHYD
                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                 CARBOHYD
                                                                                                                                     CARBOHYD
                                                                                                                                              CARBOHYD
                                                                                                                                                        CARBOHYD
                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                      CARBOHYD
                                     RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                             P29846
                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                            POLG_HCVTW
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                   δλ
```

```
Pfam; PF01005; HCV_NS4a; Pfam; PF01001; HCV_NS4a; Pfam; PF01001; HCV_NS4b; 1.

R Pfam; PF01001; HCV_NS4b; 1.

R Pfam; PF010506; HCV_NS4b; 1.

R Pfam; PF00271; halicase_C; 1.

DR Probom; PD186062; HCV_NS1; 1.

RW Polyprotein; Gycprotein; Transferase; RNA-directed RNA polymerase; KW Transmembrane; Nonstructural protein; Hydrolase; Serine protease. FT INIT_MET 1 115 CORE PROTEIN (POTENTIAL).

FT CHAIN 116 191 MAARRIX PROTEIN (POTENTIAL).

FT CHAIN 192 383 MAARRIX PROTEIN (POTENTIAL).

FT CHAIN 384 729 NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).

FT CHAIN 1007 1615 NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).

FT CHAIN 1616 1862 NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).

RNA-DIRECTED RNA POLYMERASE (POTENTIAL).

POTENTIAL).

POTENTIAL.

POTENTI
                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
            PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                             SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY $29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002531; HCV_NS1.
InterPro; IPR002531; HCV_NS2.
InterPro; IPR001409; HCV_NS3.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001568; HCV_NS5.
InterPro; IPR002166; HCV_RS5.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_Core.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                            EMBL; M84754; -; NOT_ANNOTATED_CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_care; 1.
Pfam; PF01543; HCV_env; 1.
Pfam; PF01560; HCV_NS1; 1.
Pfam; PF01538; HCV_NS2; 1.
Pfam; PF02907; HCV_NS3; 1.
Pfam; PF02006; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1615
2010
3010
369
1107
11165
11196
1319
1319
233
233
234
417
                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                               PIR; A40244; GNWVTW.
HSSP; P26663; lJXP.
                                                                                                                                                                                                                                                                                                                                      MEROPS; S29.001; -. MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  347
1083
11107
1165
11230
1316
196
209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
  <del>-</del>
```

```
STRAING-CV. COLUMBIA,

XA THOOLOGIS A., ECKET J.R., Palm C.J., Federspiel N.A., Kaul S.,

A THOOLOGIS A., ECKET J.R., Palm C.J., Federspiel N.A., Kaul S.,

White O., Alonso J., Altafi H., Araujo R., Bowman C.L., Brooks S.Y.,

White O., Alonso J., Altafi H., Cheuk R.F., Ching C.W.,

Buehler E., Chan A., Chao Q., Chen H., Cheuk R.F., Ching C.W.,

A Dunn P., Etgu P., Feldblyum T.V., Feng J.-D., Fong B., Fujii C.Y.,

A Lin J.E., Goldsmith A.D., Haas B., Hansen N.F., Hughes B., Huizar L.,

A Hunter J.L., Jenkins J., Johnson Hopson C., Khan S., Khaykin E.,

A Langin-Hooper S., Lee A., Lee J.M., Leiz C.A., Li J.H., Li Y.-P.,

A Lin X., Liu S.X., Liu Z.A., Luros J.S., Maiti R., Marziali A.,

A Lin X., Liu S.X., Liu Z.A., Luros J.S., Maiti R., Marziali A.,

A Sakano H., Salzberg S.L., Schwartz J.R., Shinn P., Southwick A.M.,

Sun H., Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

Wu D., Yu G., Fraser C.M., Veysbexaia V.S., Walker M.,

"" "Sequence and analysis of chromosome I of the plant Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     O9FV53: 09X130,
01-MAR-2002 (Rel. 41, Created)
01-MAR-2002 (Rel. 41, Last sequence update)
01-MAR-2002 (Rel. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ishida J.,
                                                           (PODENTIAL).
(PODENTIAL).
(PODENTIAL).
(PODENTIAL).
(PODENTIAL).
(PODENTIAL).
(PODENTIAL).
                                                                                                                                                                                                                                                               (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Giglione C., Serero A., Pierre M., Boisson B., Meinnel D.; "Identification of eukaryotic peptide deformylases reveals universality of N-terminal protein processing mechanisms"."; EMBO J. 19:5916-5929(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 41; DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
STRAIN-CV. COLUMBIA,
STRAIN-CV. Choung H., Kim C.J., Shinn P., Banh J., Bowser L.
Carninci P., Chung M.K., Goldsmith A.D., Hayashizaki Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                        MW; AAD267D55CDFE215 CRC64
                                                                                                                          (GLCNAC. . .)
(GLCNAC. . .)
(GLCNAC. . .)
(GLCNAC. . .)
                                                                                                                                                                                                                                                                                                  (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                         GLCNAC
                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   259 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 10;
2; Mismatches
                            N-LINKED (

                                                                                                                                                                                                                                                                                                                                         N-LINKED
   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
MEDLINE=20514156; Pubmed=11060042;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83.78;
77.88;
                                                                                                                                                                                                                                                                                                                                                                        327047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 408:816-820(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
532
540
556
576
623
645
2041
2240
2529
                                                                                                                                                                                                                                                                                                                                                                            ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :|||:||||
258 IRRHVDLLV 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 LRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                              623
645
2041
2077
2240
2529
2788
3010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFM_ARATH '
                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                CARBOHYD
CARBOHYD
                                                               CARBOHYD
                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFM_ARATH
ETTTTTTTTT S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

```
SEQUENCE
                                                                                                                                                                                                                                                                                                                           193
 ŏ
                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to licenseéisb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Probom; PD003844; Pep_deformylase; 1.
Protein biosynthesis; Hydrolase; Iron; Mitochondrion; Transit peptide.
TRANSIT 7 MITOCHONDRION (POTENTIAL).
CHAIN 7 259 PEPTIDE DEFORMYLASE.
               Lin J., Liu S.X., Miranda M., Narusaka M., Nguyen M., Palm C.J., Pham P.K., Quach H.L., Sakano H., Sakurai T., Satou M., Seki M., Southwick A., Toriumi M., Yamada K., Yu G., Shinozaki K., Davis R.W., Theologis A., Ecker J.R.,
                                                                                                                                                = formate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
Rhabditidae; Peloderinae; Caenorhabditis.
Jones T., Kamiya A., Karlin-Neumann G., Kawai J., Lam B., Lee J.M.,
                                                                        "Arabidopsis CDNA clones.";
Submitted (MAR.2001) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: Removes the formyl group from the N-terminal Met of newly synthesized proteins (By similarity).
-!- CATALYTIC ACTIVITY: Formyl-L-methionyl peptide + H(2)0 = forma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
MEDLINE-91224478; PubMed=18511119;
MEDLINE-91224478; PubMed=18511119;
MEDLINE-91224478; PubMed=18511119;
"Exsand S.S., Harris L.J., Balllile D.L., Rose A.M.;
"Evolutionarily conserved regions in Caenorhabditis transposable elements deduced by sequence comparison.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ő
                                                                                                                                                          Score 36; DB 1; Length 259;
Pred. No. 6.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY SIMILARITY.
IRON (BY SIMILARITY).
F524D19C9D21463D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IRON (BY SIMILARITY). IRON (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
01-JUN-1994 (Rel. 29, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       273 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transposable element TCB2 transposase
                                                                                                                                                                                                                                                                                                                                                                       EMBL; AF250959; AAG33973.1; ALT_INIT.
EMBL; AC007591; AAD39667.1; -.
EMBL; AF51861; AAK32873.1; -.
EXSP; P27251; 1DFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000181; Pep_deformylase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -! - SUBCELLULAR LOCATION: Nuclear.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01327; Pep_deformylase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28913 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73.5%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 70.0°,
7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Caenorhabditis briggsae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    34:6-12(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        178
220
221
224
259 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ||| ||:|
149 QERRHFDLMV 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=6238;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TC2A_CAEBR
Q04202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACT_SITE
METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TC2A_CAEBR
 Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
```

```
use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                          Transposable element; DNA-binding; DNA recombination; DNA integration; Nuclear protein.
                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                 Length 273;
                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                           273 AA; 31916 MW; C11FDBFA02CCE52B CRC64;
                                                                                                                                                                                                                                                                                                                                                 Score 35; DB 1;
Pred. No. 10;
1; Mismatches (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Search completed: August 23, 2002, 09:55:21 Job time: 51 sec
                                                                                                                       EMBL; M64308; AAA28149.1; -.
INTERPO: IPR002492; Transposase_5.
Pfam; PF01498; Transposase_5; I.
ProDom; PD002059; Transposase_5; I.
                                                                                                                                                                                                                                                                                                                                                    71.48;
85.78;
                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |||:|||
| RRHVDLL 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 RRHIDLL 9
```

Ĺ

OM protein - pr		
1		
1	Copyright (c) 1993 - 2000 Compugen Ltd.	
	protein search, using sw model	
Run on:	August 23, 2002, 10:21:58 ; Search time 139.83 Seconds (without alignments) 12.372 Million cell updates/sec	s/sec
Title: Perfect score: Sequence:	US-08-854-825-3 49 1 QLRRHIDLLV 10	
Scoring table:	BLOSUM62 Gapop 10.0 , Gapext 0.5	
Searched:	562222 seqs, 172994929 residues	
Total number of	Total number of hits satisfying chosen parameters: 562222	
Minimum DB seq Maximum DB seq	length: 0 length: 2000000000	
Post-processing:	: Minimum Match 0% Maximum Match 100% Listing first 45 summaries	
Database :	SPTREMBL_19:* 1: sp_archea:* 2: sp_bacteria:* 3: sp_fungi:* 4: sp_human:* 5: sp_invertebrate:* 6: sp_mamal:* 7: sp_mhc:* 10: sp_plange:* 10: sp_plange:* 11: sp_rodent:* 13: sp_vortebrate:* 14: sp_unclassified:* 15: sp_unclassified:* 16: sp_bacteriap:*	

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Description	068302 hepatitis c 068300 hepatitis c 068301 hepatitis c 068921 hepatitis c 068925 hepatitis c 068925 hepatitis c 068920 hepatitis c 068921 hepatitis c 068921 hepatitis c 068919 hepatitis c 068169 hepatitis c 068169 hepatitis c 068169 hepatitis c 068160 hepatitis c 068160 hepatitis c 068160 hepatitis c 068160 hepatitis c 068160 hepatitis c
SUMMARIES ID	068302 068301 068301 068921 068924 068925 068920 068920 068119 068110 068110 068110 068110
DB	
% Query Match Length DB	95 102 102 125 125 126 126 126 128 128 128 128 128
% Query Match	10000000000000000000000000000000000000
Score	444444444444444 999999999999999999
Result No.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

	U98ULU NEPALLLIS C Q98UN8 Hepatitis C Q98UN7 Hepatitis C Q98UN2 Hepatitis C Q98UM2 Hepatitis C
068732 068733 068733 068733 068419 068419 068420 068421 081417 081417 081417 081390 081390 081390 081390 081390 081390 081390 081390 081390 081016 098016 098016	
64 4 4 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	118 119 119 119 119 119 119 119 119 119
	100.00
00000000000000000000000000000000000000	1 4 4 4 4 4 7 0 0 0 0 0
1111 122222222222222222222222222222222	44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

ALIGNMENTS

																								0,		
		GP35)]			dae;						tis, C													Gaps		
		2) (viri						pati	1		E1.										.; 0		
		E1 (GP32) (GP35)]			e; Flaviviridae;						"Identification and characterisation of Thai isolates of hepatitis'		Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.	-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN				Envelope protein; Glycoprotein; Polyprotein;				ř	Length 95;	Indels		
	(e)	late) TEIN			stag						olat		atab	LYCO				olyp			رمرو			0; I		
ن	pdat	upd OPRO			DNA						i is		BJ d	PE G				n; P			223	4	DB 12; 0.048;	0		
95 AA.	n eou	ation GLYC			ou .						f Tha		JK/DE	WELC				rotei			32075		_	shes		
0.	d) equer	nnota LOPE			uses,						on of		enBar	US EN				усор			7 7 7 6 6		e 49;	Mismatches		
PRT;	Created) Last sequence update)	st a ENVE			vir						satio		BL/G	VIR				Ę.			86270xx69397533x CBC64.	1	Score 49; Pred. No.			
	Cr La), La :NS:			rand					D.;	teri		le EM	IS C	,	nv.		tein					., .,	0;		
ζΥ;	1. 01,	. 19 NTAI			re-st					anon	arac		5 th	ATIT	2.1;	ICV_e	7; 1.	pro			10305 MW.	5	100.0%; 100.0%;	ve		
MINA	BLre] BLre]	BLre] N [CC			sitiv					anist	nd ch		95) t	HE C	64862	19; F	V_env	elope		- i	y C	1		rvati	0	œ
PRELIMINARY;	(TremBLrel. 01, (TremBLrel. 01,	2001 (TrEMBLrel. 19, Last annotation update) POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN		irus	A po	,	TO2;	N.	43;	×.	on a		R-19	Y: T	AAA	0025	; HC	Env		٦ <u>١</u>	97 98	Ì	arit	Conservative	LV 10	QLRRHIDLLV 48
Δ,		.01 ()LYPR	<u>.</u>	C	SSRN	us.	TT=0.	FROM	V-BB	ai S	cati.		(MA	ARIT	396;	IPR	1539	ein;	rane		Q L)	imi.		QLRRHIDLLV	HIDL
1 02 02;	01-NOV-1996 01-NOV-1996	01-DEC-2001 GENOME POLYE	(FRAGMENT).	Hepatitis C virus.	Viruses; ssRNA positive-strand viruses, no DNA stage;	Hepacivirus	NCB1_14X1D=11105; [1]	SEQUENCE FROM N.A.	STRAIN-HCV-BB43;	Songsivilai S., Kanistanon D.;	ntifi	 	itted	SIMIL	EMBL; U23396; AAA64862.1;	InterPro; IPR002519; HCV_env.	Pfam; PF01539; HCV_env; 1	Coat protein;	Transmembrane.	TER	F L L		Query Match Best Local Similarity	10;	OLRF	
T 1 2 Q68302 Q68302;	01-K	01-DEC- GENOME	(FRA	Нера	Viru	Hepa	[2]	SEOUL	STRA	Song	"Idei	virus.	Subm		EMBL.	Inte	Pfam	Coat	Tran	NON_TER	SECTIFICE	i i	Query Match Best Local	Matches	1	39
RESULT Q68302 ID Q		DE DE	DE GN	SO	ပ	88	Y 22	RP	RC C	RA	RŢ	RT	RL	ပ္ပ	DR	DR	DR	ΚW	X	E E	1 0	ž	Que	Mat	Qy	qq

```
STRAIN=H78;
                                                                                                                                                                                                                                                 STRAIN=H47;
                                                                                                                                                                                                                                                                                                                                                                       NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                             Q68921
Q68921;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      068924
                                                                                          RESULT
Q68921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
Q68924
                                                            g
                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                      01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19), Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                     U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-HCV-BBB;
Songsivilai S., Kanistanon D.;
"Identification and characterisation of Thai isolates of hepatitis' C
                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                       Songsivilai S., Kanistanon D.; "Identification and characterisation of Thai isolates of hepatitis'
                                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                            100.0%; Score 49; DB 12: Length 102; 100.0%; Pred. No. 0.052; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                     Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.
-1- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN 1EMBL; U23394, AAA64860.1; -.
Interpro: IPROJ239; HCV_env.
Pfam; PF01539; HCV_env; 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    virus.";

Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.
-1- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN JENBL; U23395; AAA64861.1; -.
InterPro: TPR002519; HCV_env.
Pfam; PF01539; HCV_env. 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                           102 AA; 11040 MW; 2C560825E0AD043E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                           102 AA.
                                                                                                                                                                                                                                                                                                                            Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               102
                                                                                                                                                                                                                                                                                                                                                                                  40 OLRRHIDLLV 49
                                                                                                    Hepatitis C virus.
                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                       1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                             NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID-11103;
                                                                                                                                                                STRAIN-HCV-BB4;
                                                                                                                                                                                                                                                                    Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transmembrane.
                                                                                 FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                          Q68301
Q68301;
                  Q68300
Q68300;
7
RESULT
Q68300
                            ò
                                                                                                                                                                                                                                                                                                                                                                                          셤
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               068924;
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Argentini C., Guiseppetti R., D'ugo E., Rapicetta M.;
"In vivo" molecular variability of HCV El protein , in equilibrium
and disequilibrium systems following an epidemiologically linked
infection.";
Submitted (FEB-1995) to the EMBL/GenBank/DDBJ databases.
-- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN El.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Argentini C., Guiseppetti R., D'ugo E., Rapicetta M.; "In vivo" molecular variability of HCV El protein , in equilibrium and disequilibrium systems following an epidemiologically linked
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus type la.
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis C virus type la.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
0
  100.0%; Score 49; DB 12; Length 102; 100.0%; Pred. No. 0.052;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 49; DB 12; Length 125; 100.0%; Pred. No. 0.064;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; X84982; CAA59342.1; -.
InterPro; IPR002519; HCV_env.
Pfam; PF01539; HCV_env; 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               infection.";
Submitted (FEB-1995) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        125 125 125 MW; E5FAAE14A85D04DA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                       0;
                                                                                                                                                                                                                                                                                                125 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            125 AA.
                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                               01-NOV-1996 (TrEMBLrel. 01, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                           1 QLRRHIDLLV 10
                                                                                                                                      111111111
40 QLRRHIDLLV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepacivirus.
NCBI_TaxID=31646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=31646;
```

4

CC DR DR KW KW FT SO SO SO

```
SEQUENCE FROM N.A.

STRAIN=H406;
A Argentini C., Guiseppetti R., D'ugo E., Rapicetta M.;
In vivo" molecular variability of HCV E1 protein , in equilibrium and disequilibrium systems following an epidemiologically linked infection.";
Submitted (FEB-1995) to the EMBL/GenBank/DDBJ databases.

I. Submitted (FEB-1995) to the EMBL/GenBank/DDBJ databases.

SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1.

REMBL; X84988; CAA59348.1; -.

REMBL; X84988; CAA59348.1; -.

REMBL; X84988; CAA59348.1; -.

REMBL; X84988; CAA59348.1; -.

REMBL; X84988; CAA593948.1; -.

ROOAT PROLEIN; ENVELOPE FIVOLENT.

W Transmembrane.

NOATER 125

SEQUENCE 125 AA; 13571 MW; 8682479F31393689 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=H48;
Argentini C., Guiseppetti R., D'ugo E., Rapicetta M.;
"In vivo" molecular variability of HCV El protein , in equilibrium and disequilibrium systems following an epidemiologically linked infection.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (FRAGMENT).

Pepatitis C virus type la.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 49; DB 12; Length 125; 100.0%; Pred. No. 0.064; ive 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 49; DB 12; Length 126; 100.0%; Pred. No. 0.065; Live 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (FEB-1995) to the EMBL/Genbank/DDBJ databases.
-1- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN
EMBL; X84983; CAA5943.1; -.
Interpro, IPR002519; HCV_env.
Pfam; PF01539; HCV_env.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 1
126 126
126 AA; 13770 MW; EFIE1139C663C932 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=31646;
     NCB1_TaxID=31646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fransmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         068922;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     068922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     068923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
Q68922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q68923
ID Q6
     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 068920 PRELIMINARY; PRT; 125 AA.
068920;
01.00V-1996 (TrEMBLrel. 01, Created)
01.00V-1996 (TrEMBLrel. 01, Last sequence update)
01.0EC-2001 (TrEMBLrel. 10, Last annotation update)
01.DEC-2001 (TrEMBLrel. 10, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
(FRAGMENT).
Hepatitis C virus type la.
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOFROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Argentini C., Guiseppetti R., D'ugo E., Rapicetta M.;
"In vivo" molecular variability of HCV El protein , in equilibrium and disequilibrium systems following an epidemiologically linked infection.";
Submitted (FEB-1995) to the EMBL/GenBank/DDBJ databases.
-!-SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN El.
EMBL; X84986; CAA5346.1; -.
Enterpro; IPRO02519; HCV_env.
Pfam; PF01539; HCV_env.
Coat protein; Envelope protein; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus type la.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                     ö
-!- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN E1. EMBL; X84985; CAA59345.1; -. InterPro; IPR00219; PC-env. Pfam; PF01539; HCV. env. 1. Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                             100.0%; Score 49; DB 12; Length 125; 100.0%; Pred. No. 0.064; Live 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 49; DB 12; Length 125; 100.0%; Pred. No. 0.064;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON TER 1
NON_TER 125 125
SEQUENCE 125 AA; 13634 MW; 1FFD690E0265F55C CRC64;
                                                                                                                                                       9DE92A29EA525B3D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                               125 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                             NON_TER 1
NON_TER 125 125
SEQUENCE 125 AA; 13615 MW;
                                                                                                                                                                                                             Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                         1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65 QLRRHIDLLV 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=31646;
                                                                                               Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ransmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-H79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                           068925
                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 068920
1D Q6
DT Q1
DT Q1
DT Q1
DE GE
DE (F
OS HE
OC VI
```

ò С ö

Gaps

.; 0

Ξ.

ö

Gaps

ö

068925

δ q

```
Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                             128
                                                                                                                                                                                                                                                                     128 AA;
               [1]
SEQUENCE FROM N.A.
STRAIN=1A;
       QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                       1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                     Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                          NCBI_TaxID=11103;
                                                                                                                                                                                                                                                      \begin{array}{c} 1 \\ 128 \end{array}
                                                                                                       (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                      (FRAGMENT).
                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                          Q68168
Q68168;
                                                                                                                                                                                                                                                                                                                                                                                068169;
                                                                                                                                                                                                                                                                                                                                                                          068169
                                            11
                                                                                                                                                                                                                                                                                                                                                           RESULT 12
                                            RESULT
                    g
                                                                   ö
                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                 .
0
                                                                                            01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
      01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 01, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                               equilibrium
                                                Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                           (FRRGMENT).
Hepatitis C virus type la.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                 ch 100.0%; Score 49; DB 12; Length 126; I Similarity 100.0%; Pred. No. 0.065; 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81FCDF0232DC9662 CRC64;
                                                                                                                                                                                                                                                                                                 126 AA
                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 1
126 126
126 AA; 13763 MW;
                                   (FRAGMENT).
Hepatitis C virus type la.
                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                               1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                               SEQUENCE FROM N.A. STRAIN-H68;
                                                                NCBI_TaxID=31646;
                                                                                                                                                                                                                                                                                                                                                                Hepacivirus.
NCBI_TaxID=31646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transmembrane.
                                                           Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                         068919;
                                                                                                                                                                                                                                                                                                068919
                                                                                                                                                                                                                                                                                    RESULT 10
                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                           068919
ô
                                                                                                                                                                                                                                                            g
```

ö

Gaps

.; 0

0; Indels

0; Mismatches

Conservative

Query Match Best Local Similarity Matches 10; Conserv

٥

100.0%; Score 49; DB 12; Length 126; 100.0%; Pred. No. 0.065;

```
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 01, Last annotation update)
GENOME POLYPROTEIN (CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                     Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                     Greene W.K., Cheong M.K., Ng V., Yap K.W.; 
 "Prevalence of hepatitis C virus sequence variants in South-East
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Greene W.K., Cheong M.K., Ng V., Yap K.W.;
"Prevalence of hepatitis C virus sequence variants in South-East
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 49; DB 12; Length 128;
Pred. No. 0.066;
Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                              J. Gen. Virol. 76:211-215(1995).

- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN EMBL; U14204; AAGC3893.1; -
Interpro; IPR002519; HCV_env.
Pfam; PF01539; HCV_env. 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein; Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. Gen. Virol. 76:211-215(1995).

- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN EMBL; U14205; AASC58894.1; -.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E3C99FE837321362 CRC64;
128 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     128 AA.
PRT;
                                                                                                                                                                                                                                                                                           STRAIN=1A;
MEDLINE=95146953; PubMed=7844535;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=95146953; PubMed=7844535;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; ; 100.0%; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14041 MW;
```

ن

```
Search completed: August 23, 2002, 10:21:58 Job time: 1498 sec
                                                                                                                                                                                                                                    1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 89
   [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80 QLRRHIDLLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ransmembrane.
                                                                                                                                   Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10;
                                                                                                                                         NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                              Asia."
                                                                                                                                                                                                                                                                                                        09E2P7
                                                                                                                                                                                                                                                                                    RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                Q9E2P7
    qq
                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΫ
                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                       01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GP32) (GP35)]
                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                               Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                      STRAIN=1A;
MEDLINE=95146953; PubMed=7844535;
Greene W.K., Cheong M.K., Ng V., Yap K.W.;
"Prevalence of hepatitis C virus sequence variants in South-Bast
                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                 E_1
                                                                              100.0%; Score 49; DB 12; Length 128; 100.0%; Pred. No. 0.066;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 12; Length 128;
                                                                                                                                                                                                                                                                                                                                                                                     J. Gen. Virol. 76:211-215(1995).
                                                                                                                                                                                                                                                                                                                                                                                                       EMBL, U14206, AAC53895.1; -.
InterPro; IPR002519; HCV_env.
Pfam; PF01539; HCV_env; 1.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
           Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1
                                                  E3C99FEC66321362 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E3C99FE837360362 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 49; DB 12
100.0%; Pred. No. 0.066;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          128 AA.
                                                                                                                                                                                             128 AA.
                                                                                                  Mismatches
                                                                                                                                                                                                                01-NOV-1996 (TrEMBLrel. 01, Created)
                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                    ;
                                     128 128
128 AA; 14041 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128 AA; 14027 MW;
Pfam; PF01539; HCV_env; 1.
                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      128
                                                                                                                                  Best Local Similarity
Matches 10; Conserv
                                                                                         Similarity
                                                                                                                        1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 QLRRHIDLLV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UIIIIIIII
QLRRHIDLLV 75
                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                         Hepatitis C virus
                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1
128
                      Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   fransmembrane.
                                                                              Query Match
Best Local Simi
Matches 10;
                                                                                                                                                                                                                                                        (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (FRAGMENT).
                             NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        068186
068186;
                                                                                                                                                                                                   068170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14

Q68186

LD Q68186

DT Q1-NOV

DT 01-DEC

DE GENOME

DE (FRAGM

GN E1.

OS Hepati

OC Hepati

OC Hepati

OC Hepati

OC Hepati
                                                                                                                                                                                           068170
                                                                                                                                                                        RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                 068170
  DR
KW
FT
SO
                                                                                                                        ŏ
                                                                                                                                        qq
                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN [CONTAINS: ENVELOPE GLYCOPROTEIN E1 (GP32) (GP35)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                Greene W.K., Cheong M.K., Ng V., Yap K.W.;
"Prevalence of hepatitis C virus sequence variants in South-East
                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                   E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 137;
                                                                                                                                                                                                                                                                                              Length 128;
                                                                               J. Gen. Virol. 76:211-215(1995).
-:- SIMILARITY: TO HEPATITIS C VIRUS ENVELOPE GLYCOPROTEIN
EMBL; U14222; AAC53911.1; -.
InterPro; IFF00229; HCV_env.
Pfam: PF01539; HCV_env.
Coat protein; Envelope protein; Glycoprotein; Polyprotein;
                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                            5EA7EC4702688414 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            137 137
137 AA; 14734 MW; 8017992B8932346D CRC64;
                                                                                                                                                                                                                                                                                           100.0%; Score 49; DB 12;
100.0%; Pred. No. 0.066;
11ve 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 49; DB 12;
Pred. No. 0.07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        137 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
STRAIN=1A;
MEDLINE=95146953; PubMed=7844535;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
                                                                                                                                                                                                        1 1
128 128
128 AA; 13999 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
100.0%;
                                                                                                                                                                                                                                                                                            Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
```

```
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
```

- protein search, using sw model OM protein

August 23, 2002, 10:00:59; Search time 179.72 Seconds (Without alignments) 5.562 Million cell updates/sec Run on:

US-08-854-825-26 50

1 LLCPAGHAV 9 Title: Perfect score: Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

747574 segs, 111073796 residues Searched:

747574 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

A_Geneseq_032802:* Database :

3: /SIDS1/gcgdtad/mind geneseq/geneseqp-embl/AA1982.DAT: *
4: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1982.DAT: *
5: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1982.DAT: *
6: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1984.DAT: *
6: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1986.DAT: *
7: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1985.DAT: *
8: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1980.DAT: *
9: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1980.DAT: *
10: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1990.DAT: *
11: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1990.DAT: *
12: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1991.DAT: *
13: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1991.DAT: *
13: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1991.DAT: *
14: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1991.DAT: *
15: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1992.DAT: *
16: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1992.DAT: *
17: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1992.DAT: *
18: /SIDS1/gcgdtad/hold-geneseqy-embl/AA1992.DAT: *
19: /SIDS1/gcgdata/hold-geneseqy-embl/AA1999.DAT: *
19: /SIDS1/gcgdata/hold-geneseqy-embl/AA1999.DAT: *
20: /SIDS1/gcgdata/hold-geneseqy-embl/AA1999.DAT: *
21: /SIDS1/gcgdata/hold-geneseqy-embl/AA1999.DAT: *
22: /SIDS1/gcgdata/hold-geneseqy-embl/AA1999.DAT: *
22: /SIDS1/gcddata/hold-geneseqy-embl/AA1999.DAT: * /SIDS1/gcgdata/hold-geneseg/genesegp-emb1/AA1980. /SIDS1/gcgdata/hold-geneseg/genesegp-emb1/AA1981.

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution.

					SUMMARIES	
		æ				
Result	Sort	Query	Query	ä	1	Dografiation
				}		
1	20	100.0	6	16	AAR84573	Cytotoxic I-cell e
7	20	100.0	6	20	AAY10236	T_cell epitope/MHC
Э	20	100.0	6	20	AAY10517	HLA Class I motif
4	20	100.0	10	16	AAR84599	HCV-1 derived pept
S	20	100.0	93	10	AAP90148	Sequence of hepati
9	20	100.0	93	10	AAP92031	Sequence encoded i
7	20	100.0	93	12	AAR14541	Encoded by Hepatit
6 0	20	100.0	93	12	AAR14352	HCV protease seque
6	20	100.0	93	16	AAR68542	Hepatitis C virus
10	50	100.0	93	18	AAW01691	HCV protease clone
=	5.0	100.0	69	5	AAW46392	Amino poid spanon

AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides

Ç

no ac atiti NS3 atiti NS3	NS3 NS3 titi o ac NS3	rocop			Protein sequence of HCV protease seque HCV insoluble NS3 HCV NS3 protease c HCV NS3 protease c HCV Insoluble NS3 HCV NS3 protease c
AAW97604 AAB15211 AAW12963 AAW04578 AAW01641	AAW47143 AAY57202 AAY4727 AAW56480 AAW12965	AAW01643 AAY44728 AAB15212 AAB15220 AAB15221	AAB15222 AAB15223 AAB15224 AAB15225 AAB15226	AAW012300 AAW01673 AAW01644 AAW14752 AAW01696	AAW97597 AAW97597 AAW9241 AAW04582 AAW01650 AAW09240 AAW09240
20 21 17 17 18	13 13 17	21 21 21 21 21	211 221 21 21 21 21 21 21 21 21 21 21 21	118	20 20 11 11 11 18
183 183 183	183 184 187	189 191 195 195	197 197 197 197	505 505 505 505 505 505	202 202 202 210 210 234 234
100.0 100.0 100.0 100.0	100.00		100.0 100.0 100.0 100.0	0.0000000000000000000000000000000000000	1000.00
200000	20000	20000	200000	200000000000000000000000000000000000000	200000000000000000000000000000000000000
122 133 155	17 19 20 21	2 2 2 2 2 4 3 4 4 6 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6	27 28 30 31	1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 6 4 4 4 4 4 4 0 0 0 0 0 0 0 0 0 0 0 0

ALIGNMENTS

RESULT	RESULT 1
T OI	AAR84573 standard: peptide: 9 AA.
XX	
AC	AAR84573;
XX	
DI	25-APR-1996 (first entry)
XX	
DE	Cytotoxic T-cell epitope, aa 1169-1177 of HCV-1 NS3 region.
××	
ΚW	Hepatitis C virus; HCV; epitope; vaccine; immunogen.
< C	
2	neparitis C viius.
×	
PN	WO9525122-A1.
××	
PD	21-SEP-1995.
××	
PF	16-MAR-1995; 95WO-US03224.
×	
PR	17-MAR-1994; 94US-0214650.
XX	
ΡA	(SCRI) SCRIPPS RES INST.
XX	
ΡΙ	Cerny A, Chisari FV;
XX	
DR	WPI: 1995-336941/43.
XX	
ΡŢ	Novel molecule comprising a cytotoxic T cell epitope - used
PT	
XX	
PS	Claim 1; Page 67; 85pp; English.
XX	
ပ္ပ	AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived

~

ö

Gaps

ö

Indels

Length 9;

100.0%; Score 50; DB 20; 100.0%; Pred. No. 6.4e+05; ive 0; Mismatches 0;

Query Match Best Local Similarity 9; Conserve

1 LLCPAGHAV

ó

```
The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunological CTL response in the mammal; and (b) maintaining the lamunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious diseases, e.g. viral disease such as hepaticis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAX10071 to AAX10039 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                ó
from the core, E1, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptide specific cytotoxic T-cell activity. The peptides ARR84570-77 were found have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Inducing a cytotoxic T lymphocyte response – by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                0
                                                                                                                                             Length 9;
                                                                                                                                                                              Indels
                                                                                                                                           100.0%; Score 50; DB 16;
100.0%; Pred. No. 6.4e+05;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                     T cell epitope/MHC ligand SEQ ID NO:166.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Page 30; 199pp; English.
                                                                                                                                                                                                                                                                                                                                             AAY10236 standard; Peptide; 9 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98WO-US14289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-0988320
97CA-2209815
                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kuendig TM, Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1999-120514/10.
                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus.
                                                                                                                                                                                                                  1 LLCPAGHAV 9
                                                                                                                                                                                                                                    9 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                   12-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .0-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                AAY10236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                              AAY10236
                                                                                                                                                                                                                                                                                                                                                                              8888888
                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                    ò
```

```
an immunological cytotoxic Tiyanhocyte (TL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal, and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintaining the lemmunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, c.c. e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes place in the milieu of the lymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAV10071 to AAV10639 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes a method of inducing and/or sustaining
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                   Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 50; DB 20;
ilarity 100.0%; Pred. No. 6.4e+05;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                 HLA Class I motif peptide SEQ ID NO:447.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 44; 199pp; English.
                                                                                                      AAY10517 standard; Peptide; 9 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97US-0988320.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     98WO-US14289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                          Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9 AA;
WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10-DEC-1997;
10-JUL-1997;
                                                                                                                                                                              12-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                  21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kuendig TM,
                                                                                                                                            AAY10517;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                       m
                                                                                    AAY10517
                                                                                                                         g
```

 \sim

AAR84599

```
Sequence encoded in the hepatitis C virus (HCV) cDNA insert in clone 8h.
                                                                                                                                                                                                                 Hepatitis C virus gene - used for prodn. of polynucleotide probes, polypeptide(s) and antibodies for diagnosis, prevention and treatment of infection.
                                                                                                                                                                                                                                                                                                 The sequence is the peptide encoded by the hepatitis C virus (HCV) cDNA insert in clone 8h (see AAN90317). The polypeptides are used to diagnose HCV-induced NANBH, to raise antibodies for immunoassay or treatment, or to produce vaccines.

The region shown overlaps with clone 33c.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus (HCV); non-A, non-B hepatitis (HANBH)
                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 50; DB 10;
100.0%; Pred. No. 0.28;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88US-0271450; US-122714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers 71..93 /*tag= a
                                                                                                                                                                                                                                                                         Disclosure; fig 16; 235pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAP92031 standard; protein; 93 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                            Kuo G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kuo
                                                                                  87US-0122714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88EP-0310922.
                                                       88GB-0027024
                                                                                                               (CHIR ) CHIRON CORPORATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Purified hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-MAR-1990 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Houghton M, Choo q-L,
                                                                                                                                          Houghton M, Choo QL,
                                                                                                                                                                     WPI; 1989-215054/30.
N-PSDB; AAN90317.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1989-159274/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (CHIR ) CHIRON CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            111111111
48 llcpaghav 56
                                                                                                                                                                                                                                                                                                                                                                                           93 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; AAN92087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                       18-NOV-1988;
                                                                                  18-NOV-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-NOV-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14-NOV-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C
GB2212511-A.
                           26-JUL-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-MAY-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP318216-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAP92031;
                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAP92031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides from the core, El, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptides specific cytotoxic T-cell activity. The peptides AAR84570-77 were found to have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                   HCV-1 derived peptide tested for usefulness in a HCV vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Novel molecule comprising a cytotoxic T cell epitope - used vaccinate against hepatitis C viral infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 50; DB 16; Length 10; Pred. No. 0.034; 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus; clone 8h; clone 33c; probe; vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence of hepatitis C virus cDNA insert in clone 8h.
                                                                                                                                                                                                               Hepatitis C virus; HCV; epitope; vaccine; immunogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers 71..93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Example 1; Page 45; 85pp; English.
                                                                                                AAR84599 standard; peptide; 10 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 9; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                             94US-0214650.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAP90148 standard; protein;
                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                          (SCRI ) SCRIPPS RES INST
                                                                                                                                                                                                                                                                                                                                                                                                                      Cerny A, Chisari FV;
                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1995-336941/43.
                                                                                                                                                                                                                                             Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10 AA;
               1 LLCPAGHAV 9
1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pan troglodytes.
                                                                                                                                                                                                                                                                                                                                16-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                             17-MAR-1994;
                                                                                                                                                                                                                                                                         WO9525122-A1
                                                                                                                                                        25-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1989
                                                                                                                                                                                                                                                                                                    21-SEP-1995
                                                                                                                             AAR84599;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAP90148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
```

AAP90148

RESULT

ò

.; 0

Gaps

.; 0

us-08-854-825-26.rag

Matches

g ò

AAR14541

ó

Gaps

; 0

```
The DNA from the clone was used to prepare a hSOD:HCV protease fusion construct. The truncated protease analogue expressed by the resulting vector is proteolitically inactive and can be used to assay a wide range of pharmaceutical agents for controlling HCV. Those agents which inhibit the protease activity sufficiently will also inhibit viral infectivity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 50; DB 12; Length 93; Pred. No. 0.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Method for assaying pharmaceutical cpds. - for determining anti-Hepatitis C Virus activity, using binding affinity.
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                        Hepatitis C virus; HCV; human superoxide dismutase; SOD.
   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protease; HCV; clone C8h; inhibition.
                                                                                                                                                                                                                                                                     HCV protease seguence encoded by clone C8h.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus (HCV) protease clone C8h.
   Mismatches
                                                                                                                                                              AAR14352 standard; Protein; 93 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR68542 standard; Protein; 93 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 3; Fig 4; 68pp; English.
 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 91WO-US02209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90US-0505434
   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           See also AAR14349-R14356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1991-325236/44.
N-PSDB; AAQ14361.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (PROT-) PROTOS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus viral infectivity
                                                                      56
                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                   1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93 AA;
                                                         1 LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48 llcpaghav
                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rosenberg S;
                                                                                                                                                                                                                                                                                                                                                                             WO9115596-A
 9;
                                                                                                                                                                                                                                  16-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17-AUG-1995
                                                                                                                                                                                                   AAR14352;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                           ထ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
   Matches
                                                                                                                                             AAR14352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR68542
                                      Ωÿ
                                                                      Op
                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Clone C8h was isolated from a HCV CDNA library (ATCC 40394) using probe C8h (see AAQ14309). It was digested with EcoRI and DdeI to give a 208bp fragment. This fragment, along with fragments from clone C33c (see AAQ14303) and clone C36d (see AAQ14298), was cloned into the EcoRI site of pBR322 and transformed into E.coli HB101 to give vector C300. A 945pp Nael/EcoRI fragment from C300 was ligated to a fragment from C7f+C2Dc (see AAQ14307) and AAQ14300). A fragment from this recombinant vector was eventually used to construct a vector which
                                                                  It is the sequence encoded in the hepatitis C virus (HCV) cDNA insert in clone 8h. Tag a - the region of overlap with the HCV antigen encoded in clone 33c. It is an epitope which could be used as immunoassay reagents and vaccines and to generate antibodies useful in diagnosis and passive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          encodes amino acids 1-151 of human Superoxide dismutase fused to amino acids 946-1630 of HCV protease. The vector (cf1SODp600) was transformed into E.coli D1210 cells and deposited as ATCC 68275.
                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                     .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NANBH; non-A, non-B hepatitis; liver disease; fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for
                                                                                                                                                                                                                                  Length 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 93;
                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New purified protease - derived from hepatitis \ensuremath{\mathtt{C}} virus, assay, and designing anti-HCV agents
                                                                                                                                            immunotherapy for HCV infection/non-A, non-B hepatitis
and associated nucleic acids and polypeptide(s)
                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                               100.0%; Score 50; DB 10;
100.0%; Pred. No. 0.28;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 50; DB 12;
Pred. No. 0.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C Virus protease clone C8h
                                   Claim 13; Figure 16; 139pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                              AAR14541 standard; Protein; 93 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example 3; Fig 4; 74pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91WO-US02210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90US-0505433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                   9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Houghton M, Choo Q,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (CHIR-) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1991-325218/44.
                                                                                                                                                                                                                                                   Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                           Hepatitis C virus
                                                                                                                                                                             93 AA;
                                                                                                                                                                                                                                                                                                       1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB; AAQ14299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9115575-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-0CT-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Encoded by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR14541;
                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
```

ó

Gaps

ó;

ហ

Page

```
AAW46392 standard; Protein; 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                  90US-0505433.
94US-0350884.
                                                                                                                                                                                                                                                                                                                                                                                                                           96US-0709173.
                                                                                                                                                                                                                                                                                                                                                                                                                                           91US-0680296.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95US-0440548
                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kuo
                                                                                                                                                                                                         Conservative
                                        specific poly:peptide(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1998-119986/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CHIR ) CHIRON CORP
                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                           Hepatitis c virus.
                                                                                                                                                                                                                                  93 AA;
                                                                                                                                                                                                                          1 LLCPAGHAV 9
N-PSDB; AAT59255.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AAV04988
                                                                                                                                                                                                                                                                                                                                                                                                                          06-SEP-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                           04-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                          US5712145-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-DEC-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12-MAY-1995;
                                                                                                                                                                                                                                                                                                                                                                                                           27-JAN-1998
                                                                                                                                                                                                                                                                                                 AAW46392;
                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    choo Q,
                                                                                                                                                                                                                                                                 RESULT 11
QQ
                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                         AAQ80170 encodes AAR68542 hepatitis C virus (HCV) protease clone C8h,
                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                          HCV; NS3; non-structural domain 3; protease; polyprotein; inhibitor; screen; processing; infection; treatment; probe; hepatitis C virus.
                                                                                                                                                                                                                using recombinant expression systems large amounts of protease can be produced. The HCV protease can be used in the production of Abs. It can also be used for assaying agents which inhibit protease activity, to identify compounds which inhibit viral infectivity.
                                                                                                                                                      DNA encoding hepatitis C virus protease - used to produce large amts. of the protease and to develop prods. for inhibition of viral infectivity
                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                              Score 50; DB 16; Length 93;
Pred. No. 0.28;
Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                         AAW01691 standard; Protein; 93 AA.
                                                                                                                                                                                         Example 3; Fig 4; 69pp; English
                                                                                                                                                                                                                                                                                                 .;
0
                                                                                                                                                                                                                                                                                100.0%;
100.0%;
                                                                       90US-0505433.
91US-0680296.
                                                                                                                Kuo G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90US-0505433.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kuo G;
                                                       90US-0505433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   900S-0505433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91US-0680296
                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                          HCV protease clone C8h
                                                                                                               Choo Q, Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Houghton M,
                                                                                                                              WPI; 1995-021889/03.
N-PSDB; AAQ80170.
                                                                                               (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1997-051175/05.
                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
       Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                          48 11cpaghav 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C Virus
                                                                                                                                                                                                                                                         93 AA;
                                                                                                                                                                                                                                                                                                                1 LLCPAGHAV 9
                                                                        04-APR-1990;
04-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-APR-1990;
06-DEC-1994;
                                                        04-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-APR-1991;
                      US5371017-A.
                                                                                                                                                                                                                                                                                                                                                                                                          03-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US5585258-A
                                       06-DEC-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                         AAW01691;
                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Choo 0,
                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                  AAW01691
ð
                                                                                                                                                                                                                                                                                                                                g
```

```
its active truncation manages are claimed. Also new are fusion proteins comprising the protease (or analogues) and, e.g. human superoxide (SDD) or ubiquitin. The protease is essential for polyprotein processing, and thus infectivity, in HCV. The compsus. are used to screen for specific inhibitors (possibly useful as antiviral agents), to generate specific antibodies and to cleave specific polypeptides. HCV CDNA clones (AAT59250-56 encoding AAW01686-92 resp.) were isolated from HCV genomic library using probes AAT95244-49. The clones were used in the preparation of full-length SOD-protease fusion proteins.
                                                                                                                                                                                                                                                                                                                      comprising the hepatitis C virus (HCV) NS3 domain protease or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protease; HCV; NS3 domain; human superoxide dismutase; fusion protein; assay; activity; anti-HCV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present sequence represents the amino acid sequence of the Hepatitis C virus (HCV) clone C8h. The clone was isolated using hybridisation probe AAV04975. A cDNA fragment encoding protease was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Recombinant hepatitis C virus protease - useful in screening drugs for activity against hepatitis C virus
Compsn. contg. hepatitis C virus NS3 domain protease and related fusion proteins - useful for screening specific inhibitors, potential antiviral agents, prepn. of antibodies and for cleaving
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Amino acid sequence of the Hepatitis c virus (HCV) clone C8h.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 50; DB 18;
100.0%; Pred. No. 0.28;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                 Example 3; Column 65-68; 68pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Fig 4; 68pp; English.
```

AA;

63

```
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
   S
                                                                                    δλ
                                                                                                         a
                                                                                                                                                                                         ò
                                                                                                                                                                   ó
isolated from the clone, and cloned into an expression vector to produce a fusion protein with human superoxide dismutase-protease. The HCV protease is believed to cleave left from the genomic polyprotein. In the absence of protease activity, the HCV polyprotein should remain in its unprocessed form, and thus render the virus non-infectious. Inhibitors of protease activity should therefore also inhibit viral infectivity. The protease can therefore be used for assaying compounds for activity against HCV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The specification describes a method for making a purified Hepatitis C virus (HCV) MS3 protease or active truncation analog. If the HCV protease N-terminal cleavage signal is excluded (so that self-cleavage is prevented), the HCV protease remains in its unprocessed form, and renders the virus noninfectious. The protease is therefore useful for assaying pharmaceutical agents for control of HCV, as compounds which inhibit protease activity sufficiently will also inhibit viral infectivity. An inactive non-cleaving protease can be used to screen for inhibitors. Recombinant expression systems can be utilised to prepare recombinant HCV which can be used to produce monoclonal antibodies. The present sequence was isolated in the course of the
                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                    HCV NS3 protease; truncation analog; HCV control; protease activity; viral infectivity; inactive non-cleaving protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - useful for
                                                                                                                                                                   ..
0
                                                                                                                                          Length 93;
                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Preparation of new Hepatitis C Virus NS3 protease - u screening for compounds which inhibit HCV infectivity
                                                                                                                                                                 .;
0
                                                                                                                                           DB 19;
                                                                                                                                                     0.28;
                                                                                                                                                                                                                                                                                                                                                Amino acid segeunce of HCV protease clone C8h.
                                                                                                                                                                    Mismatches
                                                                                                                                          100.0%; Score 50; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                          AAW97604 standard; Protein; 93 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 3; Fig 4; 71pp; English.
                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                91US-0680296.
90US-0505433.
94US-0350884.
95US-0440548.
96US-0709177.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96us-0709177
                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (CHIR ) CHIRON CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1999-228536/19.
                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus.
                                                                                                                                                                                                      93 AA;
                                                                                                                                                                                          1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAX26393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04-APR-1990;
06-DEC-1994;
12-MAY-1995;
                                                                                                                                                                                                                                                                                                                        26-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-SEP-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               invention
                                                                                                                                                                                                                                                                                                 AAW97604;
                                                                                                           Sequence
                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               choo Q,
                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                               AAW97604
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                8886666666888
                                                                                                                                                                                          ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This protein is essential for the replication of the virus, acting to cleave its replicative proteins from the polyprotein produced from the HCV genome. NS4A is also needed for this process and inhibitors of the two proteins should act as antiviral treatments of HCV infection. This is useful as HCV can lead to chronic liver disease such as cirrhosis, liver failure and liver cancer. The present invention concerns a number of NS3 mutants and NS3-NS4A fusion proteins which can be used to identify inhibitors of this type, as well as enabling structural studies of the protease and protease:inhibitor complexes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Modified hepatitis C virus (HCV) NS3 protease comprising at least 1 substitution of a hydrophobic alpha-helix 0 amino acid to a hydrophilic amino acid, useful for screening inhibitors that may treat hepatitis C
                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                        viral replication; chronic liver disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present sequence is the Hepatitis C virus (HCV) NS3 protease
                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 50; DB 21; Length 182; Pred. No. 0.53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Goldfarb V;
DB 20;
                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
: Score 50; DB 20; Pred. No. 0.28; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhang Y,
                                                                                                                                                                                                                                            AAB15211 standard; protein; 182 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (BRIM ) BRISTOL-MYERS SQUIBB CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus NS3 protease
  100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 3; Fig 9; 66pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Weinheimer S,
                                                                                                                                                                                                                                                                                                                                                                                                                          protease; vir
liver cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-JAN-2000; 2000WO-US00345.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0115271.
                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000-465976/40.
  Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2000-465976/
N-PSDB; AAA70344.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                    1 LLCPAGHAV 9
                                                                                                                Hepatitis; NS3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200040707-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wittekind M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08-JAN-1999;
                                                                                                                                                                                                                                                                                                                                   19-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-JUL-2000
                                                                                                                                                                                                                                                                                       AAB15211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                         AAB15211
```

14

```
Search completed: August 23, 2002, 10:00:59 Job time: 389 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ó
                                                                                                                                                                                                                                                                                                                                                                                                                The catalytic domain (AAW12963) of hepatitis C virus (HCV) NS3 protease (NS3p) can be produced in soluble form by attachment of a solublishing peptide (see also AAW12964-66 and AAW09236-37) or hydrophilic tail (AAW42391-92, AAW09245-47), or in insoluble form (AAW09240), pref. with an N-terminal His tag (AAW09241) to facilitate purification. NS3p may also be expressed as a fusion to NS4A cofeactor (AAW09242). NS3p constructs can be produced in host cells using vectors contg. the encoding CDNA sequences (see also AAT42386-95) for use with novel NS3p substrates (AAW12957-62) in high throughput assays to identify HCV protease inhibitors of potential therapeutic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Serine protease; NS3; HCV; inclusion body; protein solubilisation; refolding; renaturation.
                                                                                                       #CV; NS3 protease; substrate; nonstructural polyprotein;
inhibitor; assay; liver disease; hepatocellular carcinoma; tumour.
                                                                                                                                                                                                                                                                                                                                            New soluble substrates for hepatitis C virus NS3 protease - are non-structural poly:proteins and are attached to solubilising motifs, useful for determining protease inhibitors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
100.0%; Score 50; DB 17; Length 183;
Best Local Similarity 100.0%; Pred. No. 0.54;
Matches 9; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus NS3 protease catalytic domain.
                                                                                                                                                                                                                                                                                                                                                                                           Example 1; Page 37-39; 70pp; English.
                                                                                                                                                                                                                                                                                     굓
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW04578 standard; Protein; 183 AA.
           AAW12963 standard; Protein; 183 AA
                                                                                HCV NS3 protease catalytic domain.
                                                                                                                                                                                                                                                                                    Zhang
                                                                                                                                                                                                                96WO-US06389.
                                                                                                                                                                                                                                       95US-0439747
                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                    Murray MG, Ramanathan L,
                                                                                                                                                                                                                                                             (SCHE ) SCHERING CORP
                                                                                                                                                                                                                                                                                                          WPI; 1996-518617/51.
N-PSDB; AAT42386.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143 llcpaghav 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183 AA;
                                                                                                                                         Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLCPAGHAV 9
                                                                                                                                                                409635717-A2.
                                                                                                                                                                                                               09-MAY-1996;
                                                                                                                                                                                                                                       12-MAY-1995;
                                                          29-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-FEB-1997
                                                                                                                                                                                      14-NOV-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                 AAW12963;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW04578;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW04578
AAW12963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QQ
                                 ò
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Prodn. of soluble, active HCV NS3 protease - from insoluble aggregates produced by bacteria, using denaturing and reducing agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The catalytic domain (AAW04578) of hepatitis C virus (HCV) NS3 protease comprises the 183 N-terminal amino acids of the enzyme. NS3 cleaves the non-structural proteains that are necessary for HCV agents. The enzyme is expressed as insoluble aggregates in E. coli (see also AAW43706). Refolded, soluble, active NS3 protease is obtd. by: solubilising the aggregates in a buffer contg a denaturant; placing the solubilised protease in acidic pH buffer contg. a reducing agent: removing the denaturant while maintaining acidic pH; and raising the pH, stepwise, to about 7-8. The NS3 parotease may be expressed with a poly-histidine tag (see also AAW04582) to facilitate purification.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 50; DB 17; Length 183; 100.0%; Pred. No. 0.54; 1.ive 0; Mismatches 0; Indels C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Page 22-24; 36pp; English.
                                                                                                                                                                          95US-0571643.
95US-0439680.
                                                                                                                     96WO-US06388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                              Ramanathan L, Wendel M;
                                                                                                                                                                                                                                                                   (SCHE ) SCHERING CORP
                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1996-518613/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 183 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB; AAT43706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLCPAGHAV
W09635709-A1
                                                                                                                     09-MAY-1996;
                                                                                                                                                                             13-DEC-1995;
                                                                                                                                                                                                        12-MAY-1995;
                                                          14-NOV-1996.
```

0,10,00

us-08-854-825-26.rai

```
οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       76, Appl
76, Appl
34, Appl
1, Appli
3, Appli
12, Appl
14, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Appli
Appli
Appli
Appli
Appli
Appli
Appli
                                                                                                                                              (without alignments)
3.559 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 26,
                                                                                                                      Search time 61.77 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sednence gednence ged
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1: /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
                   Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08 - 214 - 650 - 25

US-08 - 350 - 884 - 76

US-08 - 709 - 177 - 76

US-09 - 478 - 479B - 1

US-09 - 478 - 479B - 1

US-09 - 478 - 479B - 12

US-09 - 478 - 479B - 12

US-09 - 478 - 479B - 12

US-09 - 478 - 479B - 16

US-09 - 478 - 479B - 22

US-08 - 709 - 177 - 1

US-08 - 709 - 177 - 65

US-08 - 709 - 177 - 65

US-08 - 709 - 177 - 65

US-08 - 709 - 173 - 66

US-08 - 709 - 173 - 66

US-08 - 709 - 173 - 66
                                                                                                                                                                                                                                                                                                                                                                                           hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-709-177-66
US-08-709-177-68
GenCore version 4.5
Copyright (c) 1993 - 2000 Comp
                                                                                                                                                                                                                                                                                                                                                      231628 segs, 24425594 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                               protein search, using sw model
                                                                                                                      August 23, 2002, 09:57:51
                                                                                                                                                                                                                                                                                                             Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Issued_Patents_AA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                    seq length: 0 seq length: 2000000000
                                                                                                                                                                                                          US-08-854-825-26
                                                                                                                                                                                                                                               1 LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                          BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
Match 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Perfect score:
                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB
                                                                               OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maximum DB
                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
```

```
Gaps
                                             Sequence 2
Sequence 7
Sequence 7
                  Sequence Sequence Sequence
                                                                         Sequence 7
Sequence 1
Sequence 1
                                                                                                               Sequence Sequence
                                                                                                                                          Sequence
                                                                                                                                                             Sequence
                                                                                                                                  Sequence
                                                                                                                                                                                                                                  Sequence 26, Application US/08214650
Patent No. 570995
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Cerny, Andreas
TITLE OF INVENTION: PREPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 50; DB 1; Length 9; 100.0%; Pred. No. 1.7e+05; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/214,650
     PCT - US2 2-0 6905A-31

US-08-833-678A-1

US-09-128-134-2

US-09-128-134-2

US-09-288-391-25

US-08-39-177-70

US-08-189-177-70

US-08-189-177-70

US-08-189-181-14

PCT - US34-07280-14

PCT - US34-07280-14

US-08-178-86

US-08-177-86

US-08-177-86

US-08-188-281B-12

US-08-177-86

US-08-177-86

US-08-177-86

US-08-177-86
                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Leydig, Voit & Mayer
STREET: Two Prudential Plaza, Suite 4900
CITY: Chicago
                                                                                                                                                                                         ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
NAME: Silvert, Donald J.
REGISTRATION UNMARE: 3752
REFERENCE/DOCKET NUMBER: 6123
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 616-5600
TELEX: 25-3533
INFORMATION FOR SEQ ID NO: 26:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 9 amino acids
474
474
474
631
631
633
686
686
687
687
687
881
841
1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; TOPOLOGY: unknown; MOLECULE TYPE: peptide US-08-214-650-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
IL
USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                       60601
                                                                                                                                                                                                                            US-08-214-650-26
                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                           CITY: C
Matches
```

ö

1 LLCPAGHAV 9

셤

```
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/709,173
FILING DATE: 06-SEP-1996
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/0560,296
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 21,013
REPERBNCE/DOCKET NUMBER: 22300-20100.20
TELECOMUNICATION INCRATION:
TELEPHONE: (415) 813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-709-173-76; Sequence 76, Application US/08709173; Pertent No. 5712145; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /AGENT INFORMAS E.
CIOTTI, THOMAS E.
TIMBER: 21,013
                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE: (415) 813-5600
TELEFAX: (415) 494-0792
TELEX: 706141
INFORMATION FOR SEQ ID NO: 76:
SEQUENCE CHARACTERISTICS:
LENGTH: 93 amino acids
TYPE: amino acids
TYPE: Amino acids
TYPE: Amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , MOLECULE TYPE: protein US-08-350-884-76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                          RESULT 2
US-08-214-650-25
Squence 25, Application US/08214650
Factor No. 5709955
GENERAL INFORMATION:
APPLICANT: CAETY, Andreas
TITLE OF INVENTION: PEPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES 5
CORRESPONDENCE ADDRESS:
ADDRESSEE: Leydig, Voit & Mayer
STREET: Two Prudential Plaza, Suite 4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 100.0%; Score 50; DB 1; Length 10; Best Local Similarity 100.0%; Pred. No. 0.0076; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
US-08-350-884-76
Sequence 76, Application US/08350884
Fatent No. 5585286
Heart No. 5585286
Heart No. 5585286
Heart Cant: Houghton, MICHAEL
HAPPLICANT: HOUGHTON, MICHAEL
HAPPLICANT: KUO, QEDRGE
HITLE OF INVENTION: HEPATITIS C VIRUS PROTEASE
HUMBER OF SEQUENCES: 86
CORRESPONDENCE ADDRESS:
ADDRESSEE: MORRISON & FOERSTER
STREET: 755 Page Mill Road
CITY: Palo Allo
STATE: California
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                               COMPOTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/214,650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Silvert, Donald J.
REGISTRATHON NUMBER: 31552
REFERENCE/DOCKET NUMBER: 61230
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 616-5600
TELEX: 25-333
INFORMATION FOR SEQ ID NO: 25:
SEQUENCE CHARACTERISTICS:
LENGTH: 10 amino acids
TYPE: amino acid
STANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: unknown
MOLECULE TYPE: peptide
US-08-214-650-25
1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.0%; Score 50; DB 1; Length 93; Best Local Similarity 100.0%; Pred. No. 0.072; Matches 9; Conservative 0; Mismatches 0; Indels
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/350,884
FILING DATE: 06-DEC-1994
CLASSIFICATION: 435
PRIOR APPLICATION NATA:
APPLICATION: A35
PRIOR APPLICATION: A35
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: CIOTTI, THOMAS E:
REGISTRATION NUMBER: 21,013
REFERENCE/POCKET NUMBER: 21,013
REFERENCE/POCKET NUMBER: 21,013
REFERENCE/POCKET NUMBER: 21,013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: HOUGHTON, MICHAEL
APPLICANT: CHOO, QUI LIM
APPLICANT: CHOO, CHOORES: 86
CORRESPONDENCES: 86
CORRESPONDENCE ADDRESS:
ADDRESSE: MORRISON & FOERSTER
STREET: 75 Pade Mill Road
CITY: Palo Alto
STATE: California
COUWITY: DAIO Alto
COMPUTER: CALIFORNIA
MEDLIM TYPE: FLORPY disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
COURTANTS: COMPUTER: PLORPY disk
COMPUTER: LEM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
```

ô

```
USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                              US-08-444-818-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-478-479B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: 1
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 50; DB 1; Length 93; 100.0%; Pred. No. 0.072; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 50; DB 2; Length 93
100.0%; Pred. No. 0.072;
ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 755.1.2

CITY: Palo Alto
CITY: Palo Alto
COUNTR: California
COUNTRE: California
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURREWT APPLICATION DATA:
APPLICATION NUMBER: US/08/709,177
FILING DATE: 06-SEP-1996
FILING DATE: A35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: HOUGHTON, MICHAEL
APPLICANT: CHOO, QUI LIM
APPLICANT: KUO, GEORGE
TITLE OF INVENTION: HEPATITIS C VIRUS PROTEASE
NUMBER OF SEQUENCES: 86
CORRESPONDENCE ADDRESS:
ADDRESSEE: ADDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22300-20100.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/680,296
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 76, Application US/08709177 Patent No. 5885799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: CICTTI, THOMAS E.
REGISTRATION NUMBER: 21,013
REFERENCE/DOCKET NUMBER: 2230(
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 494-0792
TELEX: 706141
INFORMATION FOR SEQ ID NO: 76:
SEQUENCE CHARACTERISTICS:
LENTH: 93 aming acids
                  : TELEX: 706141
: INFORMATION FOR SEQ ID NO: 7: SEQUENCE CHRARACERISTICS: ...
: LENGTH: 93 amino acids: TYPE: amino acid TYPE: amino acid MOLECULE TYPE: protein US-08-709-173-76
(415) 494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 100.C
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-709-177-76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11111111
48 LLCPAGHAV 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        111111111
48 LLCPAGHAV 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-709-177-76
TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

```
APPLICANT: Weinhelmer, Steven
APPLICANT: Shang, Yaqun
APPLICANT: Chang, Yaqun
APPLICANT: Chang, Yaqun
APPLICANT: Chang, Yaqun
TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for
TITLE OF INVENTION: Facilitating Inhibitor Screening and Structural Studies
TITLE OF INVENTION: Facilitating Inhibitor Complexes
FILE REPERENCE: DB17Sequences: Inhibitor Complexes
CURRENT APPLICATION NUMBER: US/09/478,479B
CURRENT FILING DATE: 2000-01-06
PRIOR FILING DATE: 1999-01-08
NUMBER OF SEQ ID NOS: 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 50; DB 4; Length 93; 100.0%; Pred. No. 0.072; ive 0; Mismatches 0; Indels
Sequence 34, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NAULUS DIAGNOSTICS and Vaccines NUMBER OF SEQUENCES: 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/444,818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION UNBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Harbin, Alisa A.
REGISTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 0110.002
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/09478479B
; Patent No. 633186
; GENERAL INFORMATION:
; APPLICANT: Wittekind, Michael
                                                                                                                                                                                                       ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPAN: (508)359-3876
TELEFAX: (508)359-3885
INFORMATION FOR SEQ ID NO: 34:
SEQUENCE CHARACTERISTICS:
LENGTH: 93 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100.0
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-444-818-34
                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: Chiron Cor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLCPAGHAV 9
```

```
; TYPE: PRT
; ORGANISM: Hepatitis C virus
US-09-478-479B-12
                                                                                                                                                                                                                                                                                                                                                                           US-09-478-479B-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dp.
                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-478-479B-12

Sequence 12, Application US/09478479B

Sequence 12, Application US/09478479B

Sequence 12, Application US/09478479B

Sequence 12, Application

APPLICANT: Weinhelmer, Steven

APPLICANT: Weinhelmer, Steven

APPLICANT: Cladfarb, Walentina

TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for

TITLE OF INVENTION: Pacilitating Inhibitor Screening and Structural Studies

TITLE OF INVENTION: Of Protease: Inhibitor Complexes

FILE REFERENCE: DB17Sequences

CURRENT APPLICATION NUMBER: US/09/478,479B

CURRENT FILING DATE: 1999-01-06

PRIOR FILING DATE: 1999-01-08

NUMBER OF SEQ ID NOS: 26

SEQ ID NO SEC 26

SEQ ID NO SEC 26

SEQ ID NO SEC 20

SEQ ID NO SEC 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 3 Application US/09478479B

Patent No. 633186

GENERAL INFORMATION:

APPLICANT: Wittekind, Michael

APPLICANT: Wittekind, Michael

APPLICANT: Welnheimer, Steven

APPLICANT: Goldfarb, Valentina

TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for

TITLE OF INVENTION: Of Protease: Inhibitor Screening and Structural Studies

TITLE OF INVENTION: Of Protease: Inhibitor Complexes

FILE REFERENCE: Dal/Sequences

CURRENT APPLICATION NUMBER: US/09/478,479B

CURRENT FILING DATE: 2000-01-06

PRIOR FILING DATE: 1999-01-08

NUMBER OF SEQ ID NOS: 26

SEGTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                   Query Match 100.0%; Score 50; DB 4; Length 182; Best Local Similarity 100.0%; Pred. No. 0.14; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.0%; Score 50; DB 4; Length 195; Best Local Similarity 100.0%; Pred. No. 0.15; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Hepatitis C virus US-09-478-479B-3
                                                                                                    ORGANISM: Hepatitis C virus
SOFTWARE: Patentin Ver. 2.
SEQ ID NO 1
LENGTH: 182
                                                                                                                                                                                                                                                                                                                               114 LLCPAGHAV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156 LLCPAGHAV 164
                                                                                                                                                                                                                                                                                                  1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-478-479B-3
                                                                                                                           US-09-478-479B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 3 .
LENGTH: 195
                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
APPLICANT: Wittekind, Michael
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Goldfarb, Valentina
APPLICANT: Goldfarb, Valentina
TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for
TITLE OF INVENTION: Facilitating Inhibitor Screening and Structural Studies
TITLE OF INVENTION: of Protease:Inhibitor Complexes
FILE REFERENCE: DB17Sequences
CURRENT APPLICATION NUMBER: US/09/478,479B
PRIOR TELLIG DATE: 2000-01-06
PRIOR FILLING DATE: 1999-01-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INCORDATION:
APPLICANT: Wittekind, Michael
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Zhang, Yaqun
APPLICANT: Zhang, Yaqun
APPLICANT: Coldfarb, Valentina
TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for
TITLE OF INVENTION: Pacilitating Inhibitor Screening and Structural Studies
TITLE OF INVENTION: of Protease:Inhibitor Complexes
FILE REFERENCE: DB17Sequences
CURRENT APPLICATION NUMBER: US/09/478,479B
CURRENT APPLICATION NUMBER: 60/115,271
PRIOR FILING DATE: 1999-01-08
                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
; Score 50; DB 4; Length 195;
; Pred. No. 0.15;
0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.0%; Score 50; DB 4; Length 197; Best Local Similarity 100.0%; Pred. No. 0.15; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                       ; Sequence 14, Application US/09478479B
; Patent No. 6333186
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-478-479B-16; Sequence 16, Application US/09478479B; Patent No. 6333186
           Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 9; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ) ORGANISM: Hepatitis C virus US-09-478-479B-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Hepatitis C virus US-09-478-479B-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 26
SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQ ID NOS: 26
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 16
LENGTH: 197
                                                                                                                                                        158 LLCPAGHAV 166
                                                                                                                              1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLCPAGHAV 9
```

Pred. No. 0.15;

100.08;

S

```
9; Conservative
Best Local Similarity
Matches 9; Conserva
                                                                                         158 LLCPAGHAV 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 LLCPAGHAV 166
                                                                1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLCPAGHAV 9
                                                                                                                                                                           RESULT 14
US-09-478-479B-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
US-09-478-479B-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Pate
SEQ ID NO 24
LENGTH: 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
                                                                  δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: Wittekind, Michael
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Zhang, Yaqun
APPLICANT: Charles and APPLICANT: Confidence and APPLICANT: Coldfarb, Valentina
TITLE OF INVENTION: Pacilitating Inhibitor Screening and Structural Studies
TITLE OF INVENTION: of Protease:Inhibitor Complexes
TITLE OF INVENTION: of Protease:Inhibitor Complexes
FILE REFERENCE: DB17Sequences
CURRENT APPLICATION NUMBER: US/09/478,479B
CURRENT FILING DATE: 1999-01-06
NUMBER OF SEQ ID NOS: 26
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 20
LENGTH: 197
                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Withekind, Michael
APPLICANT: Weinhelmer, Steven
APPLICANT: Zhang, Yaqun
APPLICANT: Zhang, Yaqun
APPLICANT: Zhang, Yaqun
APPLICANT: Coldfarb, Valentina
TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for
TITLE OF INVENTION: Facilitating Inhibitor Screening and Structural Studies
TITLE OF INVENTION: of Protease:Inhibitor Complexes
FILE REFRENCE: DB17Sequences
CURRENT APPLICATION NUMBER: US/09/478,479B
CURRENT FILING DATE: 2000-01-06
PRIOR FILING DATE: 1999-01-08
NUMBER OF SEQ ID NOS: 26
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 18
                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                         ö
                                         100.0%; Score 50; DB 4; Length 197; 100.0%; Pred. No. 0.15; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match

100.0%; Score 50; DB 4; Length 197;

Best Local Similarity 100.0%; Pred..No. 0.15;

Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                  Sequence 18, Application US/09478479B Patent No. 6333186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 20, Application US/09478479B Patent No. 6333186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Hepatitis C virus
US-09-478-479B-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: Hepatitis C virus US-09-478-479B-20
                  Ouery Match
Best Local Similarity luv...
9; Conservative
                                                                                                                                                       1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 13
US-09-478-479B-20
                                                                                                                                                                                                                                           RESULT 12
US-09-478-479B-18
                                                                                                                                à
                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
```

Query Match

```
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Weinheimer, Steven
APPLICANT: Zhang, Yaqun
APPLICANT: Zhang, Yaqun
APPLICANT: Goldfarb, Valentina
APPLICANT: Goldfarb, Valentina
TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for
TITLE OF INVENTION: Facilitating Inhibitor Screening and Structural Studies
TITLE OF INVENTION: OF Protease:Inhibitor Complexes
TITLE OF INVENTION: OF Protease:Inhibitor Complexes
FILE REFERENCE: DB17Sequences
CURRENT FILING DATE: 2000-01-06
PRIOR PILING DATE: 1999-01-08
NUMBER OF SEQ ID NOS: 26
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 22
LENGTH: 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Weinheimer, Steven
APPLICANT: Zhang, Yaqun
APPLICANT: Zhang, Yaqun
APPLICANT: Zhang, Yaqun
APPLICANT: Caoldarb, Valentina
TITLE OF INVENTION: Modified Forms of Hepatitis C NS3 Protease for
TITLE OF INVENTION: Pacilitating Inhibitor Screening and Structural Studies
TITLE OF INVENTION: of Protease:Inhibitor Complexes
TITLE OF INVENTION: of Protease:Inhibitor Complexes
CURRENT APPLICATION NUMBER: US/09/478,479B
PRIOR PRILING DATE: 2000-01-06
PRIOR FILING DATE: 1999-01-08
NUMBER OF SEQ ID NOS: 26
SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 50; DB 4; Length 197; Best Local Similarity 100.0%; Pred. No. 0.15; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 50; DB 4; Length 197; 100.0%; Pred. No. 0.15; tive 0; Mismatches 0; Indels
0; Indels
  Mismatches
                                                                                                                                                                                                                                                       . Sequence 22, Application US/09478479B ; Patent No. 6333186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 24, Application US/09478479B; Patent No. 6333186
  ;;
o
                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: Wittekind, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION: APPLICANT: Wittekind, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Hepatitis C virus US-09-478-479B-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ORGANISM: Hepatitis C virus US-09-478-479B-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 4; Length 197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 50;
```

Search completed: August 23, 2002, 09:57:52 Job time: 202 sec

```
GenCore version 4.5

Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on:
August 23, 2002, 09:56:44; Search time 78:82 Seconds

(without alignments)
10.972 Million cell updates/sec

Title:
US-08-854-825-26
Perfect score:
50
Sequence:
1 LLCPAGHAV 9
Scoring table:
BLOSUM62
Gapop 10.0, Gapext 0.5
Searched:
283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters:
283138

Minimum DB seq length: 0
Maximum DB seq length: 2000000000
```

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

beta-catenin - Afr beta-catenin - hum beta-catenin - hum hypothetical prote armadillo segment excinclesse ABC c protein kinase C (cocyst wall protei probable polyprote probable polyprote probable polyprote hypothetical prote plakoglobin - mous plakoglobin - desmo latent transformin hypothetical prote probable collagena probable proteinas polyprotein polyprotein polyprotein polyprotein polyprotein polyprotein polyprotein polyprotein Description genome genome g genome genome genome genome genome SUMMARIES GNWVCH S40770 GNWVCH GN GNWVC3 A45573 S18030 % Query Match Length DB 3011 3010 3010 3011 3011 3010 3010 3033 Score 0Result . 9

1 LLCPAGHAV

δ

probable collagena	probable proteinas	probable protease	probable proteinas	hypothetical prote	mannose 6-phosphat	polyprotein - marm	hypothetical prote	hypothetical prote	hypothetical prote	probable tellurium	rRNA methyltransfe	hypothetical prote	hypothetical prote	probable peptidase	probable integral
B85979	AH0422	AF0900	G82296	T26859	A30788	T08839	140185	AF1419	AG1794	AC0074	F83500	B70611	T21060	C82967	T35445
0	7	~	7	7	Н	~	~	N	~	~	~	~	7	7	7
331	331	331	337	1743	2499	2970	162	176	176	212	267	354	430	464	486
70.0	70.0	70.0	70.0	70.0	70.0	70.0	68.0	68.0	0.89	68.0	68.0	68.0	68.0	68.0	68.0
35	35	32	35	32	35	35	34	34	34	34	34	34	34	34	34
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

RESULT 1 GNWVC3 genome polyprotein - hepatitis C virus (strain HCV-1) N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru protein Ns4a; nonstructural protein NS4b; nonstructural protein NS5 C; Species: hepatitis C virus C; Date: 30-Sep-1992 #sequence_revision 30-Sep-1992 #text_change 19-Jan-2001 C; Accession: A39166; PQ0403; PQ0404 R; Choo, O, L.; Richman, K.H.; Han, J.H.; Berger, K.; Lee, C.; Dong, C.; Gallegos, C.; Proc. Natl. Acad. Sci. U.S.A. 88, 2451-2455, 1991 A; Title: Genetic organization and diversity of the hepatitis C virus. A; Reference number: A39166; MUID: 91172826 A; Accession: A39166 A; Molecule type: mRNA A; Residues: 1-3011 ACHO> A; Cross-references: GBM M62221; NID: 9329873; PIDN: AAA45676.1; PID: 9329874 R; Chan, S; W.; McOmish, F.; Holmes, E.C.; Dow, B.; Peutherer, J.F.; Follett, E.; Yap, J. Gen. Virol. 73, 1131-1141, 1992 A; Title: Analysis of a new hepatitis C virus type and its phylogenetic relationship t A; Reference number: PQ0403; MUID: 92268871
A; Molecule type: genomic RNA A; Residues: 1577-1633 < CHA> A; Residues: 1577-1633 < CHA> A; Cross-references: DDBJ:D10128 A; Experimental source: isolates E-b16 A; Accession: P00404 A; Status: preliminary A; Molecule type: genomic RNA A; Residues: 1577-1633 < CHA> A; Residues: 1577-1634 < CHA> A; Residues: 1577-1644 < CHA> A; Residues: 1574-1644 < CHA> A; Residue
F;1310-1319/Region: DEXH motif F;1316-1862/Product: nonstructural protein NS4a #status predicted <n4a> F;1616-1862/Product: nonstructural protein NS4b #status predicted <n4b> F;1863-2013/Product: nonstructural protein NS5 #status predicted <ns5> F;2014-3011/Product: nonstructural protein NS5 #status predicted <ns5> F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2077</ns5></ns5></n4b></n4a>
Query Match 100.0%; Score 50; DB 1; Length 3011; Best Local Similarity 100.0%; Pred. No. 1.2; Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

7

se

ö

```
genome polyprotein - hepatitis C virus (strain H)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru protein NS4; nonstructural protein NS5
C;Species: hepatitis C virus
A;Note: host Homo sapiens (man)
C;Date: host Homo sapiens (man)
C;Accession: A36814; A41546
R;Inchauspe, G; Zebede, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
Submitted to GenBank, July 1992
A;Description: Genomic structure of the human prototype strain H of hepatitis C virus
A;Reference number: A36814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,693,645,1213,1255,2041,2240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4 #status predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,417,423,448,532,540,556,576,623,645/Binding site: carbohydrate
                                                                                                            residue
                                                                                                                                                                                                                                                                                      P-loop; polyprotein;
                                 A; Note: this sequence is inconsistent with the nucleotide translation A; Note: the authors translated the codon AGG for residue 43 as Pro, TGG for residar Try and TrC for residue 71 as Ser A; Note: and TrC for residue 71 as Ser A; Note: sequence extracted from NCBI backbone (NCBIN:121747, NCBIP:121748) C; Superfamily: hepatitis C virus genome polyprotein C; Keywords APP; pytooprotein, hydrolase; nucleotide binding; P-loop; polyprotein E; 2-115/Product: capsid protein C ** Status predicted <*CPC> F; 116-191/Product: major envelope protein E ** status predicted <*NSI> F; 390-729/Product: monstructural protein NSI ** status predicted <NSI> F; 730-1006/Product: nonstructural protein NSI ** status predicted <NSI> F; 1307-1615/Product: nonstructural protein NSI ** status predicted <NSI> F; 1307-1237/Region: nucleotide-binding motif A (P-loop) F; 1312-1317/Region: DEXH motif ** Protein Residence ** Protei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 47; DB 1
Pred. No. 4.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 46; DB Pred. No. 6.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94.0%;
88.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    92.0%;
                  A:Cross-references: EMBL:X61591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1169 LLCPSGHAV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A, Accession: A. A. A. Molecule type: DNA
A, Molecule type: DNA
A, Molecule type: DNA
A, Residues: 1-3010 < FMD.
A, Residues: 1-3010 < FMD.
A, CIOSS-references: GB:D01171; NID:9221612; PIDN:BAA01943.1; PID:9221613
A, Experimental source: HCV-JT
A, NOTE: Sequence extracted from NCBI backbone (NCBIN:106206, NCBIP:106207)
C, Superfamily: hepatitis C virus genome polyprotein
C, KG-Words: ATP; glycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein; serin
C, KG-Words: ATP; glycoprotein; hydrolase; nucleotide cepc>
F; 116-191/Product: envelope protein E * status predicted cepc>
F; 130-729/Product: major envelope protein NS1 * status predicted censiler; product: nonstructural protein NS1 * status predicted censiler; P; 130-1237/Region: nucleotide-binding motif A (P-loop)
F; 1310-1237/Region: nucleotide-binding motif B
F; 116-1319/Resion: DEXH motif
F; 1616-1862/Product: nonstructural protein NS4 * status predicted censiler; P; 1616-1862/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein NS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein RS5 * status predicted censiler; P; 2014-3010/Product: nonstructural protein RS5 * status predic
                                                                                                                                                                                                                                                                             genome polyprotein - hepatitis C virus (strain JT)
N:Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C;Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Species: hepatitis C virus
A;Variety: isolate JKI
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 23-Mar-2001
C;Accession: S18030; S33570; A48332; S18029
R;Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
Submitted to the EMBL Data Library, September 1991
A;Description: A whole genome of hepatitis C virus cDNA was isolated from a single patie
A;Reference number: S18028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genome polyprotein - hepatitis C virus (isolate JK1)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Experimental source: isolate JK1 from an individual standard, S. Sthonda, M.; Kandawal, M.; Kobayashi, K.; Murakami, S. Arch. Virol. 128, 163-169, 1993
A; Title: Sequence analysis of putative structural regions of hepatitis C virus isolated A; Reference number: A48332; MUD:93119270
A; Recession: 833570
A; Molecule type: genomic RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Accession: A45573
R;Tanaka, T.; Kato, N.; Nakagawa, M.; Ootsuyama, Y.; Cho, M.J.; Nakazawa, T.; Hijikata,
Virus Res. 23, 39-53, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: Molecular cloning of hepatitis C virus genome from a single Japanese carrier: A;Reference number: A45573; MUID:92295714
A;Accession: A45573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: genomic RNA
A;Residues: 1-547,'T',549-621,'V',623-624,'S',626-652,'DL',655-761,'T',763-782 <HOW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                 C.Species: hepatitis C virus
C.Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: genomic RNA
A;Residues: 1-3010 <HON>
A;Cross-references: EMBL:X61596; NID:959478; PIDN:CAA43793.1; PID:959479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 47; DB 1; Length 3010;
Pred. No. 4.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94.0%;
88.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 88.۶۰
امن 8، Conservative
1169 LLCPSGHAV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: S18030
                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
```

```
A. Wolecule type: genomic RNA
A. Residues: 2650-2707 < KA2>
A. Experimental source: Japanese isolate
C. Comment: The cleavage sites of this polyprotein have not been determined.
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C virus genome polyprotein
F. 2. 115/Product: capsid protein C * status predicted < CPC>
F. 115-119/Product: major envelope protein E * status predicted < MEE>
F. 390-729/Product: mostructural protein NS1 * status predicted < NS1>
F. 130-1006/Product: hepaclivin * status predicted < NS2>
F. 1230-1237/Region: nucleotide-binding motif A (P-loop)
F. 1317/Region: nucleotide-binding motif B (P-loop)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: genomic RNA
A; Residues: 1-3010 (KAT>
A; Cross-references: GB:D90208; NID:g221610; PIDN:BAA14233.1; PID:g221611
R; Kato, N.; Ohkoshi, S.; Shimotohno, K.
Proc. Jpn. Acad. 65B, 219-223, 1989
A; Title: Japanese isolates of the non-A, non-B hepatitis viral genome show sequence v
A; Reference number: PS0085
C; Keywords: ATP; capsid protein; envelope protein; glycoprotein; hydrolase; nonstruct F;2-115/Product: capsid protein ( #status predicted <CPC>
F;10-19/Product: envelope protein M #status predicted <CPC>
F;10-39/Product: major envelope protein E #status predicted <NED>
F;30-729/Product: monstructural protein NS1 #status predicted <NS2>
F;300-1006/Product: nonstructural protein NS2 #status predicted <NS2>
F;1007-1615/Product: nonstructural protein NS2 #status predicted <NS2>
F;1130-1237/Region: nucleotide-binding motif B (P-100p)
F;1312-1317/Region: nucleotide-binding motif B (P-100p)
F;1316-1319/Region: Nonstructural protein NS4# #status predicted <N4A>
F;1316-1319/Region: Nonstructural protein NS4# #status predicted <N4A>
F;1014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;1014-3010/Product: nonstructural protein NS5+ #status predicted <NS5>
F;1014-3010/Product: nonstructural protein NS5+ #status predicted <NS5>
F;1014-3010/Product: nonstructural protein NS5+ #status predicted <NS5>
F;1014-3010/Product: nonstructural protein NS5- #status predicted <NS5>
F;1014-3010/Product: nonstructural protein NS5- #status predicted <NS5>
F;1014-2017-2018-2013/Product: nonstructural protein NS5- #status predicted <NS5>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rikato, N.; Hijikata, M.; Ootsuyama, Y.; Nakagawa, M.; Ohkoshi, S.; Sugimura, T.; Shi Proc. Natl. Acad. Sci. U.S.A. 87, 9524-9528, 1990
A;Title: Molecular cloning of the human hepatitis C virus genome from Japanese patien A; Reference number: A39253; MUID:91088550
A;Accession: A39253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nonstruct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,325,417,423,430,448,532,556,576,623,645,1213,1255,2041,2077,224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genome polyprotein - hepatitis C virus (strain J)
N:Contains: capsid protein C; envelope protein M; major envelope protein E; protein Ns4a; nonstructural protein NS5
protein NS4a; nonstructural protein NS5
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 19-Jan-2001
C;Accession: A39253; PS0086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 44; DB 1;
Pred. No. 14;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86.0%; Score 43; DB 1; ilarity 77.8%; Pred. No. 21; Conservative 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88.0%;
ilarity 88.9%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity
7, Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Than 8; Conserv?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |||| ||||
|1169 LLCPFGHAV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession: PS0086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: genomic RNA
A; Residues: 1-3011 < CKA>
A; Molecule type: genomic RNA
A; Residues: 1-3011 < CKA>
A; Rosidues: 1-3011 < CKA>
A; Residues: 1-3011 < CKA>
A; Cross-references: EMBL:D10749; NID:g221586; PIDN:BAA01582.1; PID:g221587
B; Okamoto, H; Okada, S.; Sugiyama, Y.; Yotsumoto, S.; Tanaka, T.; Yoshizawa, H.; Tsuda, Jpn. J. Exp. Med. 60, 167-177, 1990
A; Title: The S'-terminal sequence of the hepatitis C virus genome.
A; Reference number: PC1284; MUID:91013116
A; Recession: PC1288
A; Residues: 1-513 < COK2>
A; Cross-references: GB:D00831; NID:g221511; PIDN:BAA00705.1; PID:g221512
A; Residues: 1-513 < COK2>
A; Cross-reference: isolate HC-11
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome
C; Superfamily: hepati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome polyprotein - hepatitis C virus
N:Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructur)
Protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C; Species: hepatitis C virus
C; Date: 31-Mar_1992 #sequence_revision 31-Mar-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                            Gontains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu protein NS4a; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E; Takamizawa, A.; Mori, C.; Fuke, I.; Manabe, S.; Murakami, S.; Fujita, J.; Onishi, E.; J. Virol. 65, 1105-1113, 1991
J. Virol. 55, Interpretation of the hepatitis C virus genome isolated from human A; Reference number: A38465; MUID:91140698
A; Accession: A38465
        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C.Species: hepatitis C virus
C.Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
C.Accession: S40770; PC1285
R:Okamoto, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Molecule type: genomic RNA
A;Residues: 1-3010 <TAK>
A;Cross-references: EMBL:M58335; NID:g329770; PIDN:AAA72945.1; PID:g329771
C;Superfamily: hepatitis C virus genome polyprotein
        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
        ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1; Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Indels
        Indels
        ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 46; DB :
Pred. No. 6.1;
0; Mismatches
        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       submitted to the EMBL Data Library, March 1992
A;Reference number: S40770
A;Accession: S40770
                                                                                                                                                                                                                                                                                                                                                                      genome polyprotein - hepatitis C virus N;Contains: capsid protein C; envelope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .,
    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92.0%;
88.9%;
    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 88.9
nes 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1169 LLCPTGHAV 1177
                                                                                 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Accession: A38465
    .;
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loca
Matches
                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1169
    Matches
                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

ô

Gaps ö

us-08-854-825-26.rpr

```
C;Date: 19-May-2000 sequence_revision 19-May-2000 Flext_cinquye 19-Jan-2001
C;Accession: JC5620
R;Chamberlain, R.W.; Adams, N.J.; Taylor, L.A.; Simmonds, P.; Elliott, R.M.
Blochwern Blophys. Res. Commun. 236, 44-49, 1997
A;Title: The complete coding sequence of hepatitis C virus genotype 5a, the predomina A;Reference number: JC5620; MUID:97366593
A;Reference number: JC5620; MUID:97366593
A;Rossion: JC5620
A;Molecule type: mRNA
A;Residues: 1-3014 <CHA>
A;Residues: 1-3004 <CHA>
A;Residues: 1-3004 <CHA>
A;Residues: 1-3004 <CHA>
A;Residues: 1-3004 <AREDICA: 10005 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                probable polyprotein [imported] - Escherichia coli (strain 0157:H7, substrain RIMD 05 C; Species: Escherichia coli (c;Date: 18-Jul-2001 #sequence_revision 18-Jul-2001 #text_change 03-Aug-2001 C;Caccession: 690806 R;Hayassh; T: Makino, K.; Ohnishi, M.; Kurokawa, K.; Ishii, K.; Yokoyama, K.; Han, C gasawara, N.; Yasunaga, T.; Kuhara, S.; Shiba, T.; Hattori, M.; Shinagawa, H. DNA Res. 8, 11-22, 2001 A;Reference of enterohemorrhagic Escherichia coli 0157:H7 and gasawara, N. Shibas, C. Shibas, T.; Rattori, M.; Shinagawa, H. DNA Res. 8, JI-22, 2001 A;Reference number: A99629; MUID:21156231; PMID:11228796
F;1620-1866/Product: nonstructural protein NS4a #status predicted <NAA>
F;1867-2017/Product: nonstructural protein NS4b #status predicted <NAB>
F;2018-3033/Product: nonstructural protein NS5 #status predicted <NOS>
F;196,209,234,305,325,417,423,430,448,477,534,542,558,578,627,649,1091,1217,1259,2038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  genome polyprotein - hepatitis C virus (isolate EUH1480)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru protein NS43; nonstructural protein NS45; nonstructural protein NS45; nonstructural protein C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              78.0%; Score 39; DB 1; Length 3014; 55.6%; Pred. No. 1e+02; 1ve 3; Mismatches 1; Indels
                                                                                                                                                                                                                                                           Length 3033;
                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                       DB 1; 1
31;
                                                                                                                                                                                                                                                   84.0%; Score 42; DB 77.8%; Pred. No. 31; Live 1; Mismatches
                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            :||| ||||
1173 VLCPRGHAV 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ::||:|| |
1170 IMCPSGHVV 1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A Molecule type: genomic RNA
A; Residues: 1-3010 <CHEP
A; Residues: 1-3010 <CHEP
A; Cross-references: GB:MB4754
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; glycoprotein; hydrolase; nonstructura
C; Superfamily: hepatitis C status predicted <CHEP
C; Superfamily: hepatitis C status predicted <CHEP
F; 1-115/Product: capsid protein C status predicted <CHEP
F; 192-389/Product: major envelope protein B status predicted <MEE>
F; 192-389/Product: nonstructural protein NS1 status predicted <NS1>
F; 300-1006/Product: nonstructural protein NS2 status predicted <NS2>
F; 1007-1615/Product: nonstructural protein NS2 status predicted <NS2>
F; 1310-1317/Region: nucleotide-binding motif A (P-loop)
F; 1317/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome polyprotein - hepatitis C virus (isolate HC-J6)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu protein NS4s; nonstructural protein NS4b; nonstructural protein NS5C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Accession: JQ1303
R;Okamoto, H.; Okada, S.; Sugiyama, Y.; Kurai, K.; Iizuka, H.; Machida, A.; Miyakawa, Y. J. Gen. Virol. 72, 2697-2704, 1991
A;Title: Nucleotide sequence of the genomic RNA of hepatitis C virus isolated from a hum A;Reference number: JQ1303; MUID:92044440
A;Accession: JQ1303
                                                                                                                                                                                                                                                   N.Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4B>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,233,234,250,305,325,417,423,430,448,532,540,556,576,623,645,1213,1255,2041,207
                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Accession: A40244
R;Chen, P.J.; Lin, M.H.; Tai, K.F.; Liu, P.C.; Lin, C.J.; Chen, D.S.
Viclogy 188, 102-113, 1992
A;Title: The Taiwanese hepatitis C virus genome: sequence determination and mapping the A;Reference number: A40244; MUID:92230206
A;Accession: A40244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                            A;Note: host Homo sapiens (man)
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 43; DB 1; Length 3010;
Pred. No. 21;
1; Mismatches 1; Indels
                                                                                                                                                                                                            genome polyprotein - hepatitis C virus (strain Taiwan)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 77.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 86.0 Best Local Similarity 77.8 Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                     C; Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1169 LLCPSGHVV 1177
    1169 LLCPSGHVV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301303
    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

ö

Gaps

;

```
hypothetical protein Atul660 [imported] - Agrobacterium tumefaciens (strain C58, Dupo C; Species: Agrobacterium tumefaciens C; Species: Agrobacterium tumefaciens C; Species: 11-3nn-2002 #sequence_revision 11-Jan-2002 #text_change 11-Jan-2002 C; Accession: AG3780 R; Wood, D.W.; Setubal, J.C.; Kaul, R.; Monks, D.; Chen, L.; Wood, G.E.; Chen, Y.; Woo erage, G.; Gillet, W.; Grant, C.; Guenthner, D.; Kutyavin, T.; Levy, R.; Li, M.; McC1 Science 294, 2317-2323, 2001 A; A; Authors: Yoo, H.; Tao, Y.; Biddle, P.; Jung, M.; Krespan, W.; Perry, M.; Gordon-Kam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ster, E.W.
A,Title: The Genome of the Natural Genetic Engineer Agrobacterium tumefaciens C58.
A,Reference number: AB2577; PMID:11743193
A,Accession: AG2780
A,Status: preliminary
A,Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: GB:AE008688; PIDN:AAL42661.1; PID:g17740094; GSPDB:GN00186
A;Experimental source: strain C58 (Dupont)
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           plakoglobin - mouse (fragment)
C;Species: Mus musculus (house mouse)
C;Date: 06-Jan-1995 #sequence_revision 06-Jan-1995 #text_change 17-Mar-1999
C;Accession: 355092
B;Butz, S: Stappert, J: Weissig, H.; Kemler, R.
Science 257, 1142-1144, 1992
A;Fitle: Plakoglobin and beta-catenin: distinct but closely related.
A;Reference number: S35091; MUID:92376536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 621;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76.0%; Score 38; DB 2;
llarity 100.0%; Pred. No. 16;
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 36; DB 2;
Pred. No. 1e+02;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Search completed: August 23, 2002, 09:56:47 Job time: 137 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Map position: circular chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72.0%;
85.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A, Residues: 1-621 <BUT>
A, Cross-references: EMBL:M90365
C, Keywords: cytoskeleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Status: preliminary A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1111 11
386 LCPANHA 392
                                                || ||||
60 CPTGHAV 66
CPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |||||||
85 LCPAGH 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 LCPAGHA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 LCPAGH 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Gene: Atu1660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
                                                                                                                                                                                              14
m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pp
                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               probable polyprotein 21679 [imported] - Escherichia coli (strain 0157:H7, substrain EDL9 C;Species: Escherichia coli (c;Species: Escherichia coli (s;Species: Escherichia coli (s; Escherichia coli 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     probable polyprotein b1045 [similarity] - Escherichia coli
C;Species: L2-Sep-1997 #sequence_revision 17-Sep-1997 #text_change 02-Nov-2001
C;Accession: B64847
R;Blattner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N.T.; Burland, V.; Riley, M.; CC
A; Rose, D.J.; Mau, B.; Shao, Y.
A; Rose, D.J.; Mau, B.; Shao, Y.
A; Reference 277, 1453-1462, 1997
A;Tile: The complete genome sequence of Escherichia coli K-12.
A;Reference number: A64720; MUID:97426617
A;Reference number: A6487
A;Residues nucleic acid sequence not shown; translation not shown
A;Wolecule type: DNA
A;Residues: 1-177 caLAAT?
A;Residues: 1-177 caLAAT?
A;Residues: 1-177 caLAAT.
A;Residues: 1-177
                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                        A) Residues: 1-177 - CHAY>
A) Cross-references: GB:BA000007; PIDN:BAB34846.1; PID:g13360887; GSPDB:GN00154
A) Experimental source: strain 0157:H7, substrain RIMD 0509952
C; Genetics:
A, Gene: ECS1423
C; Superfamily: Pyrococcus abyssi hypothetical protein PAB0445
                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76.0%; Score 38; DB 2; Length 177; 85.7%; Pred. No. 16; Live 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                 Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Indels
                                                                                                                                                                                                                                                                                                                                                     5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 38; DB 2;
Pred. No. 16;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                             Score 38; DB 2
Pred. No. 16;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                 76.0%;
85.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 76.0%;
Best Local Similarity 85.7%;
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 76.0
Best Local Similarity 85.7
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 1111
60 CPTGHAV 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 CPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 CPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                              .
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B64847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pp
```

•

^

```
GenCore version 4.5
Copyright (c) 1993 · 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

August 23, 2002, 09:55:21; Search time 37 Seconds Run on:

(without alignments)
 9.418 Million cell updates/sec

US-08-854-825-26 50 Title: Perfect score:

1 LLCPAGHAV 9 Sequence: BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

105224 seqs, 38719550 residues Searched:

Total number of hits satisfying chosen parameters:

length: 0 length: 2000000000 Minimum DB seq Maximum DB seq Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_40:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	h gen	Ġ	h genome	h genome	h genome		h genome	micromonc			homo		mus r	Q9wu82 rattus norv				~	P36582 schizosacch	P45527 escherichia	_	_	~	~	~		~	enpac	P82279 homo sapien	133 bos t	5555 home	54 mus m	TV36 S118
SUMMARIES	. QI	LG_H	POLG_HCVJT	POLG_HCVH	POLG_HCVBK	POLG_HCVJA	POLG_HCVTW	POLG_HCVJ6	MYRA_MICGR	PLAK_MOUSE	PLAK_XENLA	PLAK_HUMAN	CTNB_HUMAN	CTNB_MOUSE	CTNB_RAT	CTNB_XENLA	CTNB_URECA	ARM_DROME	UVRA_MYCTU	PCK1_SCHPO	YHBU_ECOLI	MPRI_BOVIN	TR12_HUMAN	T10B_HUMAN	YT45_CAEEL	VCL_THECC	PGL2_RALSO	PGL1_RALSO	BAIC_EUBSP	CRBH_HUMAN	FBN1_BOVIN	FBN1_HUMAN	FBN1_MOUSE	FBN1_PIG
	DB		Н	-	Н	ч	-	Н	Н	-	Н	٦	Н	٦	Н	Н	Н	П	Н	Н	Н	-	-	-+	Н	Н	~	-	-	-	П	Н	Н	Н
	Length	3011	3010	3011	3010	3010	3010	3033	295	621	738	743	781	781	781	781	818	843	972	988	331	2499	417	440	507	525	529	531	540	1376	2871	2871	2871	2871
d₽	Query Match	100.0	94.0	92.0	88.0	86.0	86.0	84.0	74.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	70.0	70.0	68.0	68.0	0.89	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
	Score	50	47	46	44	43	43	42	37	36	36	36	36	36	36	36	36	36	36	36	35	32	34	34	34	34			34	34	34	34	34	34
	Result No.	1	7	æ	4	2	9	7	80	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	58	30	31	32	33

Q61555 mus musculu	P35556 homo sapien	P26661 h genome po	P37052 escherichia	P38481 shigella fl	P47022 saccharomyc	P55539 rhizobium s	P57184 buchnera ap	P54359 drosophila	P54643 dictyosteli	P47027 saccharomyc	P30876 homo sapien
FBN2_MOUSE	FBN2_HUMAN	POLG_HCVJ8	YCHJ_ECOLI	YCHJ_SHIFL	YJL8_YEAST	ISPA_RHISN	FLIP_BUCAI	SEP2_DROME	SP87_DICDI	YJJO_YEAST	RPB2_HUMAN
1	П	-	7	7		~	Н	Н	Н	Н	_
2907	2911	3033	152	152	219	332	379	419	677	764	1174
0.89	68.0	68.0	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
34	34	34	33	33	33	33	33	33	33	33	33
34	32	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                       01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP23) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)}.
Hepatitis C virus (isolate I) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polygrotein, commonly with Asp or Glu in the P6 position. Cys or Thr in P1 and Ser or Ala in P1'.
-!- SUBDUIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN CAND MENA.
                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-91172826; PubMed=1848704;

Choo Q.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C.,
Callegos C., Coit D., Medina-Selby A., Barr P.J., Weiner A.J.,
Bradley D.W., Kuo G., Houghton M.;
"Genetic organization and diversity of the hepatitis C virus.";
Proc. Natl. Acad. Sci. U.S.A. 88:2451-2455(1991).
-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE
HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                            PRT; 3011 AA.
                                                                                       (Rel. 23, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS1.
HCV_NS2.
HCV_NS3.
HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M62321; AAA45676.1; -.
                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR002531;
IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004109;
InterPro; IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A39166; GNWVC3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=11104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEROPS; S29.001;
MEROPS; U39.001;
                                                                                     01-AUG-1992
                                                                                                                                                                                                                                                                                                                                                   Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
InterPro;
                                            POLG_HCV1
                        POLG_HCV1
RESULT
```

```
POLG_HCVJT
                       000269
                                                                                                                                                                                                                                                            CAPSID PROTEIN (POTEWIAL).
MATRIX PROTEIN (POTEWIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTEWIAL).
NONSTRUCTURAL PROTEIN NS2 (POTEWIAL).
NONSTRUCTURAL PROTEIN NS4A (POTEWIAL).
NONSTRUCTURAL PROTEIN NS4A (POTEWIAL).
NONSTRUCTURAL PROTEIN NS4B (POTEWIAL).
NONSTRUCTURAL PROTEIN NS4B (POTEWIAL).
                                                                                                                                                                                                             Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                      POTENTIAL.
CHARGE RELAX SYSTEM (BY SIMILARITY).
CHARGE RELAX SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65F8C9447FCE5AF9 CRC64;
                                                                                                                                                                                                                                                      CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                   ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED (N-LINKED (N-LINKED)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED (
N-LINKED (
N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
InterPro; IPPR001490; HCV_NS4b.
InterPro; IPR0021868; HCV_NS5a.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                     Pfam; PP01543; HCV_capsid; 1. Pfam; PP01542; HCV_capsid; 1. Pfam; PP01539; HCV_capsid; 1. Pfam; PP01559; HCV_NS1; 1. Pfam; PP01560; HCV_NS2; 1. Pfam; PP01006; HCV_NS3; 1. Pfam; PP01006; HCV_NS4; 1. Pfam; PP01001; HCV_NS5a; 1. Pfam; PP01506; HCV_NS5a; 1. Pfam; PP00271; helicasa_C; 1. Probom; PD186062; HCV_NS1; 1. Probom; PD186062; HCV_NS1; 1. Probom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ¥
                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                  CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                              CHAIN
```

```
Ouery Match 100.0%; Score 50; DB 1; Length 3011;
Best Local Similarity 100.0%; Pred. No. 0.47;
Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
```

Oy 1 LLCPAGHAV 9 | | | | | | | | | | | Db 1169 LLCPAGHAV 1177

RESULT 2

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                               01-APR'1993 (Rel. 25, Created)
01-APR'1993 (Rel. 25, Last sequence update)
01-APR'1993 (Rel. 25, Last sequence update)
01-APR'1993 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein E2
GPG8) (GP70) (NS1); Protein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein E1 (GP32) (GP35); Envelope glycoprotein E2
(EC 3.4.21.98); Nonstructural protein NS48 (P4); Nonstructural protein NS48 (P27); Nonstructural protein NS58 (P56); Nonstructural protein NS58 (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate HC-JT) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
3010 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LICETPIC, IPRO0251; HCV_capsid.
LICETPIC, IPRO0251; HCV_core.
INTERPTO; IPRO02519; HCV_env.
INTERPTO; IPRO01650; Helicase_C.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01543; HCV_core; 1.
Fam; PF01560; HCV_NS1; 1.
Fam; PF01500; HCV_NS2; 1.
FRO1006; HCV_NS3; 1.
FRO1006; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_NS4b.
HCV_NS5a.
HCV_RdRP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; D11168; BAA01943.1; -.
PIR; A45573; A45573.
HSSP; P26663; 1JXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HCV_NS4a
  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR001410; DE InterPro; IPR001531; HG InterPro; IPR002518; HG InterPro; IPR004109; HG InterPro; IPR001409; HG InterPro; IPR001409; HG InterPro; IPR001466; HG InterPro; IPR002668; HG InterPro; IPR002521; HG INTERPRO; INTERPRO; IPR002521; HG INTERPRO; INTERPRO; INTERPRO; INTERPRO; INTE
                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=31642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF01001; PF01506; P
                                                                                                                                                                                                                                                                                                                                                    Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
Pfam;
Pfam;
Pfam;
```

```
RANGE BERNER BER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                               CABSID PROTEIN ( POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
NAJOR ENVELODE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
NON-STRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
PROTEASE/HELICASE NSI (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 24), Last annotation update)
Genome polyprotein (Contains: Cospid protein C (Core protein) (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate H) (HCV).
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
Pfam; PF00271; helicase_C; 1.
Probom; PD186062; HELTCA31; 1.
SWART: SW00492; HELTCA31; 1.
POlyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helrasse; APT-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease INII_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                          RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                   CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94.0%; Score 47; DB 1; Length 3010; 88.9%; Pred. No. 1.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                                                                CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94A1C77435D642BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 1.6;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT; 3011 AA.
                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N.LINKED
N.L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DECH BOX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       326573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1169 LLCPSGHAV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=11108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLG_HCVH
P27958;
                                                                                                                                                                                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                FRANSMEM
                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                 CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POLG_HCVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
       ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTIVATION OF NS.

CTIVATION OF THE VIRIA PREPLICATION.

CTIVATION OF THE VIRIA POLYMBRASE THAT PLAYS AN ESSENTIAL ROLE IN THE VIRIA REPLICATION.

CTIVATION OF THE VIRIA PROPERTY OF THE PROPERTY OF THE POST OF THE NOTICE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-TAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657.
MEDLINE-9815431; PubMed-9493270;
Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A.,
Murcko M.A., Lin C., Caron P.R.;
"Hepatitis C virus NS3 RNA helicase domain with a bound
oligonucleotide: the crystal structure provides insights into the mode
of unwinding.";
structure 6:89-100(1998).
                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657.
MEDLINE-9733132; PubMed-918764;
Yao N., Hesson T., Cable M., Hong Z., Kwong A.D., Le H.V., Weber P.C.;
"Structure of the hepatitis C virus RNA helicase domain.";
Nat. Struct. Biol. 4:463-467(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- FUNCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.
-!- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF NS3-NS4A, NS4A-NS4B, NS4B-NS5A AND NS5A NS5B.
-!- FUNCTION: NS4A FORMS A COMPLEX WITH NS3 AND IS ESSENTIAL FOR THE
                                                                                                                                                                                        U
                                                                                                                                                                              "Genomic structure of the human prototype strain H of hepatitis virus: comparison with American and Japanese isolates."; Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991).
                                  MEDLINE-92052256; Pubmed-1658800;
Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasoff M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HCV_core.
HCV_env.
Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_capsid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS3.
HCV_NS4a.
HCV_NS4b.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HCV_NS5a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1. Pfam; PF01542; HCV_core; 1. Pfam; PF01550; HCV_NS1; 1. Pfam; PF01538; HCV_NS2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; M67463; AAA4534.1; -. PIR; A38814; GNWVCH.
PDB; 1HEI; 25-NOV-98.
PDB; 1AIV; 16-FEB-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR002531;
InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR000745;
InterPro; IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR002868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR002519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IPR001650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPR002166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEROPS; S29.001; -. MEROPS; U39.001; -.
SEQUENCE FROM N.A.
                                                                                                                                      Prince A.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
```

```
NCBI_TaxID=11105;
   Hepacivirus
   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-40G-1992 (Rel. 23, Created)
01-40G-1992 (Rel. 23, Last sequence update)
01-6-0CT-2001 (Rel. 40, Last annotation update)
6enome polyprotein (Contains: Capsid protein C (Core protein) (P22);
6enome polyprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GF70) (NS1); Protean P7: Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS5A (P4); Nonstructural protein
NS5B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (Lsolate BK) (HCV).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                    Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                        REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                      CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                          (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                            (POTENT
                                                                                                                                                                                                                                                                                                                                                                                                                       92.0%; Score 46; DB 1; Length 3011; 88.9%; Pred. No. 2.4;
                                                                                                                                                                PROTEASE/HELICASE NS3.
NONSTRUCTURAL PROTEIN NS4A.
NONSTRUCTURAL PROTEIN NS5A.
NONSTRUCTURAL PROTEIN NS5A.
NONSTRUCTURAL PROTEIN NS5A.
                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                            NONSTRUCTURAL PROTEIN NS2.
                                                                                                                                 ENVELOPE GLYCOPROTEIN EL ENVELOPE GLYCOPROTEIN E2
                                                                                                                 CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                              772CBB29CCD94753
                                                                                                                                                                                                                                                                        (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                        CAPSID PROTEIN C.
                                                                                                                                                                                                                                                               N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC
                                                                                                                                                                                                                                               ATP (POTENTIAL)
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                   PROTEIN P7
                                                                                                                                                                                                              POTENTIAL.
                                                                                                                                                                                                                                                                                N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                   N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                    N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
         Pfam; PF01006; HCV_NS4a; 1.
Pfam; PF01001; HCV_NS4b; 1.
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00299; HCV_RGRP; 1.
Pfam; PF00271; helicase_C; 1.
Pr0Dom; PD186062; HCV_NS1; 1.
SMART; SMO0492; HELICG3; 1.
                                                                                                                                                                                                                                                                                                                                                                                               327142
                                                                                                                                                                                                                                                                                                                                                                                                                                         8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                       1169 LLCPTGHAV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLCPAGHAV 9
PF02907; PF01006; PF01001;
                                                                                                3D-structure.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POLG_HCVBK
P26663;
01-AUG-1992
                                                                                                                                                                                                                                     ACT_SITE
NP_BIND
SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                            TRANSMEM
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                          CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                  CHAIN
                                                                                                                                                   CHAIN
                                                                                                                         CHAIN
                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 4
POLG_HCVBK
                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
 ð
```

```
This SWISS-PROT entry is copyright. It is produced threugh a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the Buropean Bioinformatics Institute. There are no sestrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.

X MEDLINE-92227846; PubMed-956891;

Yan Y., Li Y., Munshi S., Sardana W., Cole J.L., Sardana M.,

X Steinkuehler C., Tomel L., de Francesco R., Kuo L.C., Ghen Z.;

The Complex of NS3 protease and NS4A peptide of BK strain hepatitis C

TY virus: a 2.2-A resolution structure in a hexagonal crystal form.";

Protein Sci. 7:837-847(1998).

The Protein Sci. 7:817-847(1998).

The Protein Sci. 7:817-847(1998).

The Protein Sci. 7:817-847(1998).

The Protein Sci. 7:817-847(1998).

The Protein Sci. 847(1998).

The 
                                                                                               Takamizawa A., Mori C., Fuke I., Manabe S., Murakami S., Fujita J.,
Onishi E., Andoh T., Yoshida I., Okayama H.;
"Structure and organization of the hepatitis C virus genome isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Love R.A., Parge H.E., Wickersham J.A., Hostomsky Z., Habuka N., Moomaw E.W., Adachi T., Hostomska Z.; He crystal structure of hepatitis C virus NS3 proteinase reveals trypsin-like fold and a structural zinc binding site.
                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-96235224; PubMed-8647104;
Borowski P., Heiland M., Oehlmann K., Becker B., Korneteky L.;
"Non-structural protein 3 of hepatitis C virus inhibits,
phosphorylation mediated by CAMP-dependent protein kinase.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS) OF 1027-1215.
MEDLINE=97015088; PubMed=8861916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3ur. J. Biochem. 237:611-618(1996).
                                               MEDLINE-91140698; PubMed-1847440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HCV_capsid.
HCV_core.
HCV_env.
Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Interpro; IPR001490; HCV_NS4b.
Interpro; IPR001268; HCV_NS5a.
Interpro; IPR002166; HCV_Capsid.
Interpro; IPR002521; HCV_Capsid.
Interpro; IPR002519; HCV_Core.
Interpro; IPR001519; HCV_Core.
Interpro; IPR001519; HCV_Core.
Interpro; IPR001650; Helicase_C Pfam; PF01543; HCV_Capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV_NS1.
HCV_NS2.
HCV_NS3.
HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
HCV_NS5a.
                                                                                                                                                                                                                                                                                                   Virol. 65:1105-1113(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M58335; AAA72945.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 1487-1500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PDB; 1A1Q; 25-MAR-98.
PDB; 1JXP; 14-JAN-98.
PDB; 1NS3; 08-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002531;
InterPro; IPR002518;
                                                                                                                                                                                                                                                         from human carriers.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PIR; A38465; GNWVTC
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEROPS; S29.001;
MEROPS; U39.001;
```

```
InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
  ;
0
                                                                                                                                     CAPSID PROFEIN C (POTEWIAL).
MATRIX PROTEIN (POTEWIAL).
MAJOR ENVELOPE PROTEIN E (POTEWITAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTEWITAL).
NONSTRUCTURAL PROTEIN NS2 (POTEWITAL).
PROTEASE/HELICASE NS3 (POTEWITAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PDLG_HCWJA

ID POLG_HCWJA

AC P26662

DT 01-AuG-1992 (Rel. 23, Created)

DT 01-AuG-1992 (Rel. 23, Last sequence update)

DT 16-OCT-2001 (Rel. 40, Last annotation update)

DE Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);

DE Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
                                                                                                                                                                                       NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                 Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                         Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                         BY THE
                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                               (POTENTIAL).
                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                         REMOVED FROM CAPSID PROTEIN C
                                                                                                                                                                                                                                                                                                                                                                                                                                                      88.0%; Score 44; DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                               F8422D5ECCFDFD9C CRC64;
                                                                                                                                 CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                       CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                               ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                                                              N-LINKED (
N-LINKED (
N-LINKED (
N-LINKED (
                                                                                                                                                                                                                                                                                              N-LINKED (N-LINKED (
                                                                                                                                                                                                                                                                                                                      N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                             N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (N-LINKED (
                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                       N-LINKED
                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred, No.
                                                                                                                                                                                                                                                        DECH BOX
                       Pfam; PF01538; HCV_NS2; 1.
Pfam; PF02907; HCV_NS3; 1.
Pfam; PF01006; HCV_NS4s; 1.
Pfam; PF01001; HCV_NS4s; 1.
Pfam; PF01506; HCV_NS5s; 1.
Pfam; PF00998; HCV_RKPP; 1.
Pfam; PF00271; helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                              327189
                                                                                                                                                                                                                                                                                                                                                                                                                                                               88.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                     2788
                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |||| ||||
|1169 LLCPFGHAV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                              645
2041
2077
2240
2529
2788
3010
PF01542;
PF01539;
                                                                                                                                                                                                                347
1083
                 PF01560;
                                                                                                                 3D-structure.
INIT_MET
                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                       CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                      CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
Pfam;
Pfam;
Pfam;
                                                                                                                                               CHAIN
CHAIN
CHAIN
                                                                                                                                                                       CHAIN
                                                                                                                                        CHAIN
                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                       (EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P57); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Japanese) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
--- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.
---- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPORNOTEIN BAND GLYCOPROTEIN E. THE ENVELOPE CONSISTS OF TWO PROPERNS: PROTEIN MAND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -1- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ohkoshi S., Shimotohno K.; "Molecular structure of the Japanese hepatitis C viral genome."; FEBS Lett. 280:325-328(1991).
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
                                                                                                                                                                                                                                                                                                                                          MEDLINE=91088550; PubMed-2175903;
Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi S., Sugimura T., Shimotohno K.;
"Molecular Cloning of the human hepatitis C virus genome from "Appanese patients with non-A, non-B hepatitis.";
Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISCUSSION OF SEQUENCE.
MEDLINE-91192160; PubMed-1849488;
Kato N., Hijikata M., Nakagawa M., Ootsuyama Y., Muraiso K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR002522; HCV_capsid. IPR002521; HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCV_NS3.
HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HCV_RdRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; D90208; BAA14233.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Prodom; PF00271; helicase_C; 1
Prodom; PD186062; HCV_NS1; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_env; 1.
HCV_NS1; 1.
HCV_NS2; 1.
HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_RdRP; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HCV_NS4a;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV_NS4b;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_NS5a;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR004109;
IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR002868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR002519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR; A39253; GNWVCJ.
HSSP; P26663; lJXP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEROPS; S29.001; -. MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                 NCBI_TaxID=11116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF01538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PF02907;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF01560;
                                                                                                                                                                                                                      Hepacivirus
```

```
"The Taiwanese hepatitis C virus genome: sequence determination and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 26, Last sequence update)
01-APR-1993 (Rel. 26, Last annocation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NSI); Protein P7; Nonstructural protein NS2 (P21)
(EC 3 4.22.-); Protease/helicase AS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NSA (P4); Nonstructural protein
NSAB (P27); Nonstructural protein NSA (P56); Nonstructural protein
NSAB (P60) (RNA-directed RNA Pollymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Taiwan) (HCV).
                                                             CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI (POTENTIAL).
NON STRUCTURAL PROTEIN NS2 (POTENTIAL).
         Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease. INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                          PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                      CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                   (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL)
                                                                                                                                                                                                                                                                                    POTENTIAL
                                                                                                                                                                                                                                                                                                POTENTIAL
                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 43; DB 1; Length 3010;
Pred. No. 8.1;
1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA993794F46DB185 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                      N-LINKED (GLCNAC
N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC
                                                                                                                                                                                                                                              ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC
                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT; 3010 AA.
                                                                                                                                                                                           POTENTIAL.
                                                                                                                                                                                                                                                                                                          N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     327017
SMART; SM00492; HELICC3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1169 LLCPSGHVV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=31645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POLG_HCVTW
P29846;
                                                                                                                                                                                                                  ACT_SITE
ACT_SITE
NP_BIND
SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                          TRANSMEM
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                   CHAIN
CHAIN
CHAIN
CHAIN
                                                                           CHAIN
                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POLG_HCVTW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
ò
```

SEQUENCE FROM N.A. MEDLINE-92230206; PubMed-1314449; Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.igb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CELLULAR AMNOPEPTIDASE.

CELLULAR AMNOPEPTIDASE.

MATRIX PROTEIN (POTEWITAL).

MAJOR ENVELOPE PROTEIN E (POTEMITAL).

NONSTRUCTURAL PROTEIN NS1/E2 (POTEMITAL).

PONSTRUCTURAL PROTEIN NS2 (POTEMITAL).

PROTEASE/HELLCASE NS3 (POTÉMITAL).
         mapping the 5' termini of viral genomic and antigenomic RNA.", Virology 188:102-13(1992).

-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

-!- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thi in P1 and Ser or Ala in P1.

-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEGCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN MAND GLYCOPROTEIN E. THE NUCLEGCAPSID IS A COMPLEX OF PROTEIN CAND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01342; HCV_COTE; 1.
Pfam; PF01342; HCV_COTE; 1.
Pfam; PF01539; HCV_COTE; 1.
Pfam; PF01539; HCV_NS2; 1.
Pfam; PF02907; HCV_NS3; 1.
Pfam; PF01006; HCV_NS3; 1.
Pfam; PF01001; HCV_NS4s; 1.
Pfam; PF00298; HCV_RSAs; 1.
Pfam; PF00271; HCV_RSAs; 1.
Pfam; PF00271; HCV_RSAs; 1.
ProDom; PD186062; HCV_RSAs; 1.
Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NONSTRUCTURAL PROTEIN NS4AK (POTEWIIAL).
NONSTRUCTURAL PROTEIN NS4AK (POTEWIIAL).
RNA-DIRECTED RNA POLYMERASE (POTEWIIAL)
POTEWIIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nonstructural protein; Hydrolase; Serine protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . .) (POTENTIAL).
                                                                                                                                                                                        SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATP (POTENTIAL).
DECH BOX.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                     EMBL; M84754; -; NOT_ANNOTATED_CDS.
PIR; A40244; GNWVTW.
HSSP; P2663; 1JXP.
MEROPS; S29,001; -.
MEROPS; U39,001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR002521; HCV_core.
IPR002519; HCV_env.
IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HCV_capsid.
                                                                                                                                                                                                                                                                                                                                                                                                                                    HCV_NS1.
HCV_NS2.
HCV_NS3.
HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001410; DEAD.
InterPro; IPR002531; HCV_N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115
191
383
729
1006
11652
2013
3010
3010
1083
1107
11167
11167
11167
                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002518;
InterPro; IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000745;
InterPro; IPR001490;
InterPro; IPR002868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR002521;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR002519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     116
192
384
730
1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1083
1107
1165
1230
1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ptam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-9204440; PubMed=1658196;

MEDLINE-92044440; PubMed=1658196;

MEDLINE-92044440; PubMed=1658196;

MEDLINE-92044440; PubMed=1658196;

MACHIGA A., Miyakawa Y., Kurai K., Lizuka H.,

Machida A., Miyakawa Y., Mayumi M.;

"Nucleotide sequence of the genomic RNA of hepatitis C virus isolated from a human carrier: comparison with reported isolates for conserved and divergent regions.";

J. Gen. Virol. 72:2697-2704(1991).

J. Gen. Virol. 72:2697-2704(1991).

L. FUNKTION: THE SMALL PROFEING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

C. CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pl and Ser or Ala in Pl'.

C. SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLECOAPSID IS A COMPLEX OF PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLG HVVJ6 STANDARD; PRT; 3033 AA.
P2660;
D1-AGC-1992 (Rel. 23, Created)
D1-AGC-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.22.-); Nonstructural protein NS5A (P66); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P66); Nonstructural protein
NS4B (P67); (P70) (RNA-directed RNA POLymerase) (EC 2.7.7.48)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                             (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                        (POTENTIAL)
                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAD267D55CDFE215 CRC64;
                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                           (GLCNAC.
                                                                                                   (GLCNAC.
                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 43; DB 1;
Pred. No. 8.1;
                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                            (GLCNAC.
                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (
                                                                                                                    N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                            N-LINKED (N-LINKED
                        N-LINKED
N-LINKED
                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                         N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                             N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   327047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
7; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1169 LCPSGHVV 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=11113;
209
233
223
223
225
250
305
4417
4423
4430
5540
623
623
2047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepacivirus
                                                                                            CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                      CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
CARBOHYD
                                            CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POLG_HCVJ6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ΩD
  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HDDTT HDDDTT HDDTT HDTT HDDTT HDT
```

```
Pfam: PF01200; HCV_NST...
Pfam: PF01006; HCV_NST...
Pfam: PF01006; HCV_NST...
Pfam: PF01006; HCV_NST...
R Pfam: PF01009; HCV_RRAP; 1.
R Pfam: PF00299; HCV_RRAP; 1.
R Pfam: PF00291; HCV_RRAP; 1.
R CAPE NORTHOLORE PROTEIN C BY THE CAPLIN 116 191 MATRIX PROTEIN (POTENTIAL).
FT CHAIN 194 1010 NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
FT CHAIN 1734 1010 NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
FT CHAIN 1619 PROTEIN NS4 (POTENTIAL).
HAIN 1619 PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NAA-DIRECTED RNA POLYMERASE (POTENTIAL).
NAA-DIRECTED RNA POLYMERASE.
use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (BY
(BY
(BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHARGE
                                                                                                                                                 | IPRO02531; HCV_NS1.
| IPR002518; HCV_NS2.
| IPR0004109; HCV_NS3.
| IPR001490; HCV_NS3.
| IPR001490; HCV_NS40.
| IPR00266; HCV_NS50.
| IPR002522; HCV_Capsid.
| IPR002522; HCV_capsid.
| IPR002521; HCV_core.
| IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                  Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1. Pfam; PF01539; HCV_env; 1.
                                                                             EMBL; D00944; BAA00792.1; -. PIR; JQ1303; JQ1303. HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                        HCV_NS1; 1.
HCV_NS2; 1.
HCV_NS3; 1.
HCV_NS4a; 1
                                                                                                                                           InterPro; IPR001410;
                                                                                                                  MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                        PF01560;
                                                                                                                                                                                                                          InterPro;
InterPro;
                                                                                                                                                     InterPro;
                                                                                                                                                                             InterPro;
                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                 InterPro;
                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                     Pfam;
```

S

ò q

```
6; Conservative
                                                                            REVISIONS TO 294 AND 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                          SUBUNIT: HOMODIMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47
131
173
                                                                                                                                                                                                                                   ASSOCIATED FORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  621 AA;
  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1111 11
386 LCPANHA 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 LCPAGHA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLAK_XENLA
P30998;
                                                                                        Butz S.;
Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
PLAK_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no wolfied and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. [1]
                                                                                                                                                                                                                                                                                                                                                                           Inouye M., Morohoshi T., Horinouchi S., Beppu T.;
"Cloning and sequences of two macrolide-resistance-encoding genes
                                                                                                                                                                                                                                                                                                                                                                                                   from mycinamicin-producing Micromonospora griseorubida.";
Gene 141:39-46(1994).
-!- FUNCTION: CONFERS STRONG RESISTANCE TO MYCINAMICIN (MM) AND
                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
                                     Length 3033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 295;
                                                               Indels
 329165 MW; F957F5C1A273BE9E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                Actinomycetales; Micromonosporineae; Micromonosporaceae;
                                                                                                                                                                                                                                                                                     Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        295 AA; 31348 MW; AC42F0AF750BCB1A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                  TYLOSIN (TY).

-!- SIMILARITY: TO E.COLI RRMA AND B.SUBTILIS YXJB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-1996 (Rel. 34, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
Junction plakoglobin (Desmoplakin III) (Fragment).
                                     DB 1;
12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
12;
                                                                                                                                                                                                                     Last sequence update)
Last annotation update)
                                                                                                                                                                               295 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            621 AA
                                                               1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                     Score 42;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 37;
Pred. No.
                                                                                                                                                                                                                                             Mycinamicin-resistance protein myrA
                                                                                                                                                                                                                                                                                                                                                               MEDLINE-94215886; PubMed-8163173;
                                                                                                                                                                                                      (Rel. 29, Created)
(Rel. 29, Last sequ
(Rel. 36, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel. 26, Created)
(Rel. 34, Last seq:
(Rel. 41, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; D16099; BAA03674.1; -. Antibiotic resistance.
                                     84.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               74.0%;
75.0%;
                                                                                                                                                                                                                                                                        Micromonospora griseorubida
                                  Query Match
Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6; Conservative
                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
3033 AA;
                                                                                                       Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=28040;
                                                                                       1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LRCPAGHS 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLCPAGHA 8
                                                                                                                                                                                                                                                                                                             Micromonospora
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUL-1993 (
01-OCT-1996 (
01-MAR-2002 (
                                                                                                                                                                            MYRA_MICGR
P37000;
01-JUN-1994
                                                                                                                                                                                                                   01-JUN-1994
15-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLAK_MOUSE
Q02257;
 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                      RESULT 8
MYRA_MICGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLAK_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59
```

```
modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no wa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                            SUDMITTED (JUN-1996) to the EMBL/GenBank/DDBJ databases.

-!-FUNCTION: COMMON JUNCTIONAL PLAQUE PROTEIN. THE MEMBRANE-
ASSOCIATED PLAQUES ARE ARCHITECTURAL ELEMENTS IN AN IMPORTANT
STRAPEGIC POSITION TO INFLUENCE THE ARRANGEMENT AND FUNCTION
OF BOTH THE CYTOSKELETON AND THE CELLS WITHIN THE TISSUE. THE
PRESENCE OF PLANGGLOBIN IN BOTH THE DESNOSMES AND IN THE
INTERMEDIATE JUNCTIONS SUGGESTS THAT IT PLAYS A CENTRAL ROLE IN
THE STRUCTURE AND FUNCTION OF SUBMEMBRANOUS PLAQUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
01-MAR-2002 (Rel. 41) Last annotation update)
Junction plakeglobin (Desmoplakin III).
Xenopus laevis (African clawed frog).
Eukaryota: Metzacas: Chordata: Craniata; Vertebrata: Euteleostomi; Amphibia: Batrachia; Annra; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBCELLULAR LOCATION: CYTOPLASMIC IN A SOLUBLE AND MEMBRANE-
MEDLINE=92376536; PubMed=1509266;
Butz S., Stappert J., Weissig H., Kemler R.;
"Plakoglobin and beta-catenin: distinct but closely related.";
Science 257:1142-1144(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 36; DB 1; Length 621;
Pred. No. 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; 9.
Structural protein; Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17CF444607422BAA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SIMILARITY: BELONGS TO THE BETA-CATENIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        738 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ARM 1.
ARM 3.
ARM 4.
ARM 4.
ARM 5.
ARM 6.
ARM 7.
ARM 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; S35092; S35092.
HSSP: Q02248; IDOW.
MGD; MGI:96650; Jup.
InterPro; IPR000225; Armadillo.
Pfam; PF00514; Armadillo_seg; 11.
SWART; SW00185; ARW; 8.
PROSITE; PS50176; ARW; REPEAT; 9.
Cell adhesion; Cytoskeleton; Struct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68111 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72.0%;
85.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; M90365; AAB02885.1; -.
```

ö

ó qq (Rel. 14, Created) (Rel. 14, Last sequence update) (Rel. 41, Last annotation update)

743 AA

PRT;

STANDARD;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licenseélsb-sib.ch).
                                                                                                                                                                                            PEDLINE-89264555; PubMed-2726765; Franke W.W., Goldschmidt M.D., Zimbelmann R., Mueller H.M., Schiller D.L., Cowin P.; Molecular cloning and amino acid sequence of human plakoglobin, the "molecular cloning and amino acid sequence of human plakoglobin, the common junctional plaque protein."; Proc. Natl. Acad. Sci. U.S.A. 86:4077-4031(1989).

1- FUNCTION: COMMON JUNCTIONAL PLAQUE PROTEIN. THE MEMBRANE-ASSOCIATED PLAQUES ARE ARCHITECTURAL ELEMENTS IN AN IMPORTANT STRATEGIC POSITION TO INFLUENCE THE ARRANGEMENT AND FUNCTION OF BOTH THE CYTOSKELETON AND THE CELLS WITHIN THE TISSUE. THE PRESENCE OF PLAKOGLOBIN IN BOTH THE DESMOSOMES AND IN THE INTERMEDIATE JUNCTIONS SUGGESTS THAT IT PLAYS A CENTRAL ROLE IN THE STRUCTURE AND FUNCTION OF SUBMEMBRANOUS PLAYS A CENTRAL ROLE IN THE STRUCTURE AND FUNCTION OF SUBMEMBRANOUS PLAQUES.
                                                                                                                          Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                       -i- SUBUNIT: HOMODIMER.
-i- SUBCELLULAR LOCATION: CYTOPLASMIC IN A SOLUBLE AND MEMBRANE-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SIMILARITY: BELONGS TO THE BETA-CATENIN FAMILY.
                                                                    01-MAR-2002 (Rel. 41, Last annotation un Junction plakoglobin (Desmoplakin III). JUP OR DP3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSSP, 002248, ZBGT.
MIM: 173325.
TherPro: PR000225, Armadillo.
Pfam: PF00514; Armadillo_seg; 10.
SMART; SM00185; ARM; 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M23410; AAA64895.1; -.
                                                                                                                 Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                     ASSOCIATED FORM.
                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                        NCBI_TaxID=9606;
                                         01-APR-1990
01-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; A32905;
              PLAK_HUMAN
P14923;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                       SEQUENCE FROM N.A.
MEDLINE-3030332; PubMed=1459359;
MEDLINE-3030332: Problemann R., Franke W.W.;
Frouquet B., Zimbelmann R., Franke W.W.;
"Identification of plakegolobin in occytes and early embryos of Xenopus laevis: maternal expression of a gene encoding a junctional
                                                                                                                                                                                                                       SUBUNIT: HOMODIMER.
SUBCELLULAR LOCATION: CYTOPLASMIC IN A SOLUBLE AND MEMBRANE-
ASSOCIATED FORM.
                                                                                                                                        SEQUENCE OF 133-292 FROM N.A.
MEDDINE-93012479; PubMed-1397690;
de Marais A.A., Moon R.T.;
"The armadillo homologs beta-catenin and plakoglobin are
differentially expressed during early development of Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 36; DB 1; Length 738;
Pred. No. 42;
0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X67078; CAA47463.1; -.
PIR; S24636; S24636.
PIR; S35093; S35093.
HSP; Q02248; ZBCT.
InterPro; IPR000225; Armadillo.
Pfam; PF00514; Armadillo.seg; 11.
SMART; SM00185; ARM, 10.
PROSITE; PS50176; ARM_REPEAT; 9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -> V (IN REF. 2).
-> T (IN REF. 2).
569DBE69D08BBC58 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: BELONGS TO THE BETA-CATENIN FAMILY. SIMILARITY: CONTAINS 10 ARM REPEATS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ARM 1.
ARM 2.
ARM 3.
ARM 4.
ARM 5.
ARM 6.
ARM 7.
ARM 9.
ARM 9.
                                                                                                             Differentiation 51:187-194(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            72.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Μ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; M95593; AAA49931.1; -. EMBL; X67078; CAA47463.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     650
185
226
81711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        251
293
377
                                                                                               plaque protein."
NCBI_TaxID=8355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONFLICT
                                                                                                                                                                                                                  laevis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REPEAT
```

A32905.

183 225 308 389

```
ö
                                                                                                                                                   Gaps
                                                                               -> DSSL (IN REF. 1; AAA64895).
                                                                                                                                                   .;
0
ARM 1.
ARM 2.
ARM 3.
ARM 4.
ARM 6.
ARM 6.
ARM 7.
ARM 7.
ARM 8.
QQLA -> DSSL (IN REF. 1; AAA64895).
W; 472741F400D388FD CRC64;
                                                                                                                             Score 36; DB 1; Length 743; Pred. No. 42;
                                                                                                                                                  0; Mismatches
                                                                                                  81498 MW;
                                                                                                                              72.0%;
85.7%;
                                                                                                                                                   Conservative
           224
252
351
430
473
                                                                                                                                     Best Local Similarity
Matches 6; Conser
                                                                                                 743 AA;
                                                                                                                                                                                1111 ||
508 LCPANHA 514
                                                 431
478
582
                                                                                                                                                                     2 LCPAGHA 8
                                                                                                                              Query Match
                                                                              CONFLICT
                                                                                         CONFLICT
                                                                                                 SEQUENCE
                                                                                                                                                                      δ
                                                                                                                                                                                       Q
```

ö

Gaps

; 0

Conservative

Local Similarity

Best Loca Matches

LCPANHA 512

206

2 LCPAGHA 8 *;*

õ

ķ

```
ò
                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              between the Swiss Institute of Bioinformatics and the EMBL outstation—
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                       Huelsken J., Birchmeier W., Behrens J., ^{\circ} "E-cadherin and APC compete for the interaction with beta-catenin and
                                                                                                                                                              Homo sapiens (Human).
Bustryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS50176; ARM REPEAT; 9.
Cell adhesion; Cytoskeleton; Structural protein; Nuclear protein;
Repeat; 3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Regulation of beta-catenin signaling in the Wnt pathway."; Blochem. Blophys. Res. Commun. 268:243-248(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 133-664.
BDDLINE-20578806; PubMed-1113694,
Graham T.A., Weaver C., Mao F., Kimelman D., Xu W.;
"Crysteal structure of a Deta-catenin/Tcf complex.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULTING IN ITS ACCUMULATION IN CYTOPLASM.
SIMILARITY: BELONGS TO THE BETA-CATENIN FAMILY.
SIMILARITY: CONTAINS 12 ARM REPEATS.
                           ARM 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-20145417; PubMed-10679188;
                                                                                                                                                                                                                                                                                                                                                                            Cell Biol. 127:2061-2069(1994).
                                                                                                                                                                                                                                                                                                   MEDLINE-95105247; PubMed-7806582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro: IPR000225; Armadillo.
Pfam; PF00514; Armadillo_seg; 12.
SMART; SM00185; ARM; 11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; X87838; CAA61107.1; -. EMBL; Z19054; CAA79497.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; S31988; S31988.
PDB; 1G3J; 17-JAN-01.
TRANSFAC; T02872; -.
                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                             cytoskeleton.
                                                                                                                                              CTNNB1 OR CTNNB.
                                                                                                                                                                                                                                                                                 TISSUE=Placenta;
                                                                                                                            Beta-catenin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MIM; 116806;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kikuchi A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                    REVIEW
           CTNB_HUMAN
                                                                                                                                                                                                                                                                                                                                                               the
                                 HE THE STATE OF TH
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -:- FUNCTION: INVOLVED IN THE REGULATION OF CELL ADHESION AND IN SIGNAL TRANSDUCTION THROUGH THE WNT PATHWAY.
-:- SUBUNIT: THE CYTOSOLIC FORM BOUND TO AXIN ALLOWS THE STIMULATION OF ITS DEGRADATION. THE CYTOSOLIC FORM ALSO INTERACTS WITH APC E-CADHERIN. THE NUCLEAR FORM BINDS TCF/LEF-1 AND MAY ALSO BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PONTIN52 AND DUPLIN. CAN HETERODIMERIZE WITH ALPHA-CATENIN AND ALSO FORM A TRIMERIC COMPLEX WITH CADHERIN. MEDIATES THE ANCHORAGE OF THE CADHERIN COMPLEX TO THE CORTICAL ACTIN CYTOSKELETON. SUBCELLULAR LOCATION: CYTOPLASMIC WHEN IT IS UNSTABILIZED (HIGH LEVEL OF PHOSPHORILATION), TRANSLOCATES TO THE NUCLEUS WHEN IT IS STABILIZED (LOW LEVEL OF PHOSPHORYLATION).
                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Huber A.H., Nelson W.J., Weis W.I.;
"Three-dimensional structure of the armadillo repeat region of beta-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pokutta S., Weis W.I.; "Structure of the dimerization and beta-catenin-binding region of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 118-149 IN COMPLEX WITH
                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-92376536; PubMed-1509266;
Butz S., Stappert J., Weissig H., Kemler R.;
"Plakoglobin and beta-catenin: distinct but closely related.";
Science 257:1142-1144(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Regulation of beta-catenin signaling in the Wnt pathway."; Biochem. Biophys. Res. Commun. 268:243-248(2000).
                                                                                                                                                                                                                                                                          DB 1; Length 781;
                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                             CB78F165A3EEF86E CRC64;
                                                                                                                                                                                                                                                                                                                   ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS) OF 150-665.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781 AA.
                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                        Score 36;
  3.
5.
7.
10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20145417; PubMed=10679188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20337986; PubMed=10882138;
  ARM
ARM
ARM
ARM
ARM
ARM
                                                                                                                                                                                     ARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=97442350; PubMed=9298899;
                                                                                                                                                                                                             85496 MW;
                                                                                                                                                                                                                                                                        72.0%;
85.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alpha-catenin.";
Mol. Cell 5:533-543(2000).
                                                                                                                                                                                                                                                                                                                   6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                              441
484
530
571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cell 90:871-882(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus (Mouse).
                                                                                                                                       531
594
637
781 AA;
                                                                                                                                                                                                                                                                                              Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                    519 LCPANHA 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTNNB1 OR CATNB
                                                                                                                                                                                                                                                                                                                                                           2 LCPAGHA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Beta-catenin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kikuchi A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CINB_MOUSE
                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     catenin.
                                                                            REPEAT
REPEAT
REPEAT
                                                                                                                                                                 REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REVIEW
                                                                                                                                           REPEAT
                                                             REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTNB_MOUSE
                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
```

```
ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SC SE DI PLO
                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the SWISS Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=SPRAGUE-DAWLEY; TISSUE=Testis; MEDLINE=99428593; PubMed=10497305; Chung S.S.W., Lee W.M., Cheng C.Y.; Study on the formation of specialized inter-Sertoli cell junctions in vitro.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
NCBI_TaxID=10116;
PTM: PROBABLY PHOSPHORYLATED BY GSK-3B. WNT-DEPENDENT ACTIVATION OF DVL ANTAGONIZES THE ACTION OF GSK-3B. PHOSPHORYLATION OF BETA-CATENIN IS REDUCED AND THE PROTEIN IS NO LONGER DEGRADED,
                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                    PIR: $35091; $35091.
PDB: 2BCT; 15-07-97.
PDB: 3BCT; 15-07-97.
PDB: 3BCT; 10-04-97.
PDB: 1DOW; 12-JUL-00.
PDB: 1DOW; 12-JUL-00.
PDB: 1DOW; 12-JUL-00.
PDB: 1DOW; 12-JUL-00.
MGD: MGI: 8B276; Catnb.
InterPro; 1PR000225; Armadillo.
PFam; PF00514; Armadillo_seg; 12.
SWART; SW00185; ARM; 11.
PROSITE; PS50176; ARM; 11.
PROSITE; PS50176; ARM; 11.
PROSITE; PS50176; ARM; 11.
PROSITE; PS5010; Cytoskeleton; Structural protein; Nuclear protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                          .
0
                                                                                                                                                                                                                                                                                                                                                                                                                     1; Length 781;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                           D708F170A3FBED6E CRC64;
                           RESULTING IN ITS ACCUMULATION IN CYTOPLASM. SIMILARITY: BELONGS TO THE BETA-CATENIN FAMILY. SIMILARITY: CONTAINS 12 ARM REPEATS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-0CT-2001 (Rel. 40, Created)
16-0CT-2001 (Rel. 40, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                     Score 36;
Pred. No. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          J. Cell. Physiol. 181:258-272(1999)
                                                                                                                                                                                                                                                                         ARM
ARM
ARM
ARM
ARM
ARM
ARM
                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                           MM.
                                                                                                                                                                                                                                                                                                                                                                                                                      72.0%;
85.7%;
                                                                                                                                              EMBL; M90364; AAA37280.1; -.
                                                                                                                                                                                                                                                                                                                                                                                           85470
                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                               3D-structure
                                                                                                                                                                                                                                                                                                                                         442
489
531
594
637
781 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              519 LCPANHA 525
                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 LCPAGHA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Beta-catenin.
                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTNB_RAT
09WU82;
                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                               Repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTNNB1.
                                                                                                                                                                                                                                                                                           REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                       REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                        REPEAT
                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                                                                                                                       REPEAT
                                                                                                                                                                                                                                                                                                                                                                                 REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTNB_RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
 ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                           is not removed. Usage by and for commercial agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                             SIGNAL TRANSDUCTION THROUGH THE WAT PATHWAY (BY SIMILARITY).
SUBUNIT: THE CYTOSOLIC FORM BOUND TO AXIN ALLOWS THE STIMULATION
OF ITS DEGRADATION. THE CYTOSOLIC FORM ALSO INTERACTS WITH APE AND
E-CADHERIN. THE NUCLEAR FORM BINDS TCF/LEF-1 AND MAY ALSO BIND
ANDINISS AND UPPLIN. CAN HETERODIMERIZE WITH ALPHA-CATENIN AND
ALSO FORM A TRIMERIC COMPLEX WITH CAPHERIN. MEDIATES THE ANGURAGE
OF THE CADHERIN COMPLEX TO THE CORTICAL ACTIN CYTOSKELETON (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS50176; ARM_REPEAT; 9.
Cell adhesion; Cytoskeleton; Structural protein; Nuclear protein;
FUNCTION: INVOLVED IN THE REGULATION OF CELL ADHESION AND IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 781;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9C29186B6DD54B87 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAY-1992 (Rel. 22, Created)
01-MAY-1992 (Rel. 22, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                             modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                               entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xenopus laevis (African clawed frog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12.64.00.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00514; Armadillo_seg; 12.
SMART; SM00185; ARM; 11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ARM
ARM
ARM
ARM
ARM
ARM
ARM
ARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   interPro; IPR000225; Armadillo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AF121265; AAD28504.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 85454 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72.0%;
85.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 85.7
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           441
484
530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              637
781 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2BCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      519 LCPANHA 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       319
361
440
442
489
531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 LCPAGHA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Beta-catenin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTNB_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P26233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
CTNB_XENLA
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 36; DB 1; Length 781;
Pred. No. 44;
                                                                                                                                                                                                                                                                        EMBL; M77013; AAA49670.1; -.
PIR; S35099; S35099.
HSSP; Q02248; ZBCT.
TRANSFAC; T03026; -.
InterPro; IPR000225; Armadillo.
Pfam; PF00514; Armadillo_seg; 12.
SMART: SM00185; ARM; 11.
PROSITE; PS50776; ARW_REPEAT; 9.
Cell adhesion; Cytoskeleton; Structural protein; Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                3ECD27232239F799 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                             SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            72.0%; Scilarity 85.7%; Pri
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     664 A
85449 MW;
 Xenopodinae; Xenopus.
NCBI_TaxID=8355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     625
781 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 LCPAGHA 8
                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT
REPEAT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                          REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                     REPEAT
REPEAT
REPEAT
REPEAT
ò
```

Search completed: August 23, 2002, 09:55:22 Job time: 52 sec

||||| || 519 LCPANHA 525

g

hepatitis c hepati

091183 091182 091181 091181 091187 091187 091187 091181 091181 091181 091181 091181 091181 091181 091181 091181 091181

2436 3010 3010 3010

3011

091RS3 091RS2 091RS0 091RS0 091RR8 091RR8 091RR8 091RR2 091RR2 091RR0 091RR0 091RR0 091RR0 091RR0 091RR0 091RR0 091RR0 091RR0 090RR0

```
Search time 139.83 Seconds (without alignments) 11.135 Million cell updates/sec
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                  hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                     562222 seqs, 172994929 residues
                                                                                              ٠.
                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

    protein search, using sw model

                                                                                          August 23, 2002, 10:21:58
                                                                                                                                                                                                                     BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                       : sp_archea:*
: sp_bacteria:*
: sp_fungi:*
: sp_human:*
: sp_invertebrate:*
: sp_mor:*
: sp_organelle:*
: sp_phage:*
: sp_plant:*
: sp_rodent:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_virus:*
sp_vertebrate:*
sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                    US-08-854-825-26
50
                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                       1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                SPTREMBL_19:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10:
                                                                                                                                                                                                                                                                                                    Total number of
                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                      Scoring table:
                                                             OM protein
                                                                                                                                                                                          Sequence:
                                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                               Database
                                                                                            Run on:
```

036610 091FE5 09ELS8 09DIT6

3011 3011 3011 3011 3011 3011 3015

Q9PWX5 Q9PWU9 09IFH8

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

091rt9 hepatitis c 091rt7 hepatitis c 091rt6 hepatitis c 091rt6 hepatitis c 091rt4 hepatitis c 091rt3 hepatitis c 091rt3 hepatitis c 091rt0 hepatitis c 091rt0 hepatitis c 091rs9 hepatitis c 091rs9 hepatitis c 091rs7 hepatitis c Description 091RT9 091RT7 091RT7 091RT5 091RT5 091RT3 091RT1 091RT0 091RT0 091RS9 091RS9 G DB Length 181 181 181 181 181 181 181 181 181 Query Match 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 Score Result ŝ.

																			, 0						
ALIGNMENTS	RESULT 1 091RT9	ID Q91RT9 PRELIMINARY; PRT; 181 AA.	01-DEC-2001 (TrEMBLrel. 19,	01-DEC-2001 (TrEMBLrel.	Hepatitis		_		RC STRAIN=PT.1C;	RA Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;	Clinical Strains of the Hepatitis C Virus.";	Submitted	DR EMBL; AF369214; AAK54539.1;	KW Protease.	FT NON TER 1 1	FT NON_TER 181 181	SQ SEQUENCE 181 AA; 19114 MW; BE1D0B542F014E86 CRC64;	Query Match 100.0%; Score 50; DB 12; Length 181; Best Local Similarity 100.0%; Pred. No. 0.055;	9; Conservative 0; Mismatch	Qy 1 LLCPAGHAV 9	Db 143 LLCPAGHAV 151	RESULT 2	IRTH	ID WEIKIG FRELIMINARI; FRI; 101 AA. AC Q91RTB;	

ô

Gaps

; 0

Indels

ô

```
STRAIN=PT.252;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Genetic Diversity and response to IFN of the NS3 Protease Gene from Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF369217; AAKS4542.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
01-DEC-2001 (TREMBLR).
NOS PROTEASE (FRAGMENT).
Hepatitis C virus.
Viruses: ssrNA positive-strand viruses, no DNA stage; Flaviviridae;
                         Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                     Score 50; DB 12; Length 181; Pred. No. 0.055;
                                                                                                                                                                                                                                                                                       1 1
181 181
181 AA; 19102 MW; 373DE6563C3C5959 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                 ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 9; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
        NS3 PROTEASE (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
181 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       143 LLCPAGHAV 151
                                                                                                                         SEQUENCE FROM N.A.
                                                                                 NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepacivirus
                                                                                                                                                                                                                                                                                       NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                       Protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q91RT5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q91RT5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q91RT4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
Q91RT5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
091RT4
1D 099
AC 099
DT 011
DT 011
DE NS
0S HE
        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCOCCOS SET THE SET T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                      STRAIN=PT.1D;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Generic Diversity and response to IFN of the NS3 Protease Gene from Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF369215; AAK54540.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-PT.1H;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Genetic Diversity and response to IFN of the NS3 Protease Gene from Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF369216; AAK54541.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                   181 181
181 AA; 19115 MW; 746BF671E7BCBD2E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 181
181 AA; 19107 MW; 1372F1F783A720CD CRC64;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                   h 100.0%; Score 50; DB 12;
Similarity 100.0%; Pred. No. 0.055;
9; Conservative 0; Mismatcher.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 50; DB 12; 100.0%; Pred. No. 0.055;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TrEMBLrel. 19, C
(TrEMBLrel. 19, I
(TrEMBLrel. 19, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-DEC-2001 (TrEMBLrel. 19, 01-DEC-2001 (TrEMBLrel. 19, 01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NS3 PROTEASE (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 143 LLCPAGHAV 151
                                                                                                                                              NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   091RT6;
01-DEC-2001 (
01-DEC-2001 (
01-DEC-2001 (
                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                               Protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       091RT7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              091RT7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                091RT6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
Q91RT6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      091RT7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         02455
    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

```
ö
STRAIN-FT.4;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Genetic Diversity and response to IRN of the NS3 Protease Gene from
Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF369218; AAK54543.1; -.
                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        091RT4;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                    Score 50; DB 12; Length 181; Pred. No. 0.055;
                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                        181
19130 MW; 85D91869299B7C35 CRC64;
                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 AA
                                                                                                                                                                                                                                                                                                                                                             Mismatches
```

```
9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
'Loc 9; Conserv?
                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                          143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         143 LLCPAGHAV 151
    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                    1 LLCPAGHAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLCPAGHAV
                                                                                                                                                         NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q91RT0
Q91RT0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q91RT1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q91RT1
                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
Q91RT1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q91RT0
      Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                      δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                        Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Genetic Diversity and response to IFN of the NS3 Protease Gene from
Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF369219; AAK54544.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-PT.11;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Genetic Diversity and response to IFN of the NS3 Protease Gene from
Clinical Strains of the Hepatitis C Virus.';
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF369220; AAK54545.1; -.
                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         091RT3;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAMBNT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
01-DEC-2001 (TREMBLR).
Hepatitis C virus.
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                            100.0%; Score 50; DB 12; Length 181; 100.0%; Pred. No. 0.055;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 50; DB 12; Length 181; ilarity 100.0%; Pred. No. 0.055; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                           1 1
181 181
181 AA; 19059 MW; 1E53C47AE8B7E5C9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 181
181 AA; 19116 MW; 9648807F49EBID43 CRC64;
                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                  .:
                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
'-has 9; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
'Local 9; Conserv?
                                                                                                                                                                                                                                                                                                                                                                                                               143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143 LLCPAGHAV 151
                NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                        1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLCPAGHAV 9
                                                                            STRAIN-PT.23
                                                                                                                                                                                                           NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                             Protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q91RT2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q91RT3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q91RT2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
0991RT3
1091RT3
1090RT3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10 091RT2
10 009
10 007
10 007
10 007
10 007
10 007
10 007
10 007
10 007
10 007
10 007
10 007
10 007
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

```
÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.; "Genetic Diversity and response to IFN of the NS3 Protease Gene from Clinical Strains of the Hepatitis C Virus."; Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases. EMBL, AF8369221; AAK54546.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN=PT.161;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Genetic Diversity and response to IFN of the NS3 Protease Gene from
Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
PEMBL: AF359222; AAK54547.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                  100.0%; Score 50; DB 12; Length 181; 100.0%; Pred. No. 0.055; rive 0: Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 50; DB 12; Length 181; 100.0%; Pred. No. 0.055; tive 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=PT.170;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
                                                                                                                                                                                               1 1
181 181
181 AA; 19106 MW; 354881366F3070F5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 181
181 AA; 19114 MW; ABB90B5B3ABA4E26 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 AA.
```

```
EMBL; AF369225; AAK54550.1;
                                                                   1
181
181 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                        143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |||||||||
|143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                      1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
NON_TER
SEQUENCE
                                        Protease.
NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q91RS7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
Q91RS7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              091RS6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 14
Q91RS6
                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DR
KW
FT
FT
SQ
                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
"Genetic Diversity and response to IFN of the NS3 Protease Gene from Clinical Strains of the Hepatitis C Virus."; Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases. EMBL, AF369223; AAK54548.1; -.
                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-PT.174;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Genetic Diversity and response to IFN of the NS3 Protease Gene from
Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/Genbank/DDBJ databases.
EMBL; AF369224; AAK54549.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FRAIN-PT.176;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Genetic Diversity and response to IFN of the NS3 Protease Gene from
Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                       Length 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 181;
                                                                                                                                                                                                                                                                                                 Query Match 100.0%; Score 50; DB 12; Length 1 Best Local Similarity 100.0%; Pred. No. 0.055; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                               181 181
181 AA; 19116 MW; 9648807F49EB1D43 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 AA; 19131 MW; 8BD7FC2769DBD635 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             091RS9;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       091RS8;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 50; DB 12; 100.0%; Pred. No. 0.055;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 LLCPAGHAV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus
                                                                                                                                                   NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     091RS9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 091RS8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 11
091839
AC 091889
AC 091889
DT 01-DEC
DT 01-DEC
DE NS3 PR
OC HEPALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 12
091RS8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
      RATE SO FIT SO STATE 
                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ô
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-PT.183;
Holland-Stelley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Holland-Stelley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Genetic Diversity and response to IFN of the NS3 Protease Gene from
Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL, AF369227; AAK54552.1;
-.
NON_TER 1
                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-PT.177;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
"Genetic Diversity and response to IFN of the NS3 Protease Gene from Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.

EMBL, AF369226; AAK54551.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
01-DEC-2001 (TREMBLR).
NS3 PROTEASE (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .;
0
                                                                                                                                         Query Match
100.0%; Score 50; DB 12; Length 181;
Best Local Similarity 100.0%; Pred. No. 0.055;
Matches 9; Conservative 0; Mismatches 0: Indels 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 100.0%; Score 50; DB 12; Length 181; Best Local Similarity 100.0%; Pred. No. 0.055; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
19116 MW; 9648807F49EBID43 CRC64;
                                                          574AC47AE8AEE5D2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
1
181
19114 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
181 AA;
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-PT.186;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Holland-Staley C.A., Kovari L.C., Golenberg E., Mayers D.L.;
Genetic Diversity and response to IRN of the NS3 Protease Gene from Clinical Strains of the Hepatitis C Virus.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL, AF369228; AAK54553.1; -.
NON_TER 1 1 1
NON_TER 181 A8; 19086 MW; ABBBD98B3ABA4D25 CRC64;
                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                 091RS5 PRELIMINARY; PRT; 181 AA.
091RS5;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS3 PROTEASE (FRAGMENT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
NCBL_TAXID=11103;
                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                         Ouery Match

Ouery Match

100.0%; Score 50; DB 12; Length 181;

Best Local Similarity 100.0%; Pred. No. 0.055;

Matches 9; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
100.0%; Score 50; DB 12; Length 181;
Best Local Similarity 100.0%; Pred. No. 0.055;
Matches 9; Conservative 0; Mismatches 0; Indels C
181 181
181 AA; 19097 MW; 7744468EB7EFDB2E CRC64;
                                                                                                                                                  1 LLCPAGHAV 9
||||||||
143 LLCPAGHAV 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
NON_TER
SEQUENCE
                                                                                                                                                                                                                                           RESULT 15
091RS5
AC 091RS5
DT 01-DEC
DT 01-DEC
DE NS3 PR(
OC VITUSES
OC VITUSES
OC NCBL_TR
RP SEQUEN
RR HOLIAIR
RT "GENEL!
RT CLINIC
RW PROTES
KW PROTES
KW PROTES
SEQUEN
FT NON_TE
SEGUEN
FT NON_TE
SEGUEN
FT
                                                                                                                                                                                        g
                                                                                                                                                      δ
```

Search completed: August 23, 2002, 10:21:59 Job time: 1499 sec

1 ELCPAGHAV 9 ||||||||| 143 ELCPAGHAV 151

g &

THIS PAGE BLANK (USPTO)

. • • •

OM protein

Run on:

```
AAY15437
AAY15426
                                                                             AAR69529
AAR37289
AAR14555
                                          AAR69528
AAY15432
                                                                  AAY15443
AAP92025
                                                                                            AAW80514
                                                                                                   AAP90144
AAP92027
                                                                                        AAR81942
                                                                          AAR59855
(without alignments)
6.180 Million cell updates/sec
                        Search time 179.72 Seconds
   4.5
Compugen Ltd.
                                                                     hits satisfying chosen parameters:
                                                               747574 seqs, 111073796 residues
   GenCore version
Copyright (c) 1993 - 2000
                       August 23, 2002, 10:00:59;
                                                                                            Maximum Match 100%
Listing first 45 summaries

    protein search, using sw model

                                                    BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                      A_Geneseq_032802:*
                                                                             length: 0
length: 2000000000
                                      US-08-854-825-28
45
                                                                                       Post-processing: Minimum Match 0%
                                             1 KLVALGINAV 10
                                                                      Potal number of
                                                                             sed
                                         Perfect score:
Sequence:
                                                    Scoring table:
```

Minimum DB Maximum DB

Database

Searched:

Hepatitis C virus
Anti-HCV antibody
Anti-HCV antibody
Anti-HCV antibody
Anti-HCV antibody
HCV NS-3 reactive
HCV NS-3 reactive
HCV antigenic NS3
Anti-HCV antibody
Anti-HCV antibody
Anti-HCV antibody
Anti-HCV antibody
CV NS-3 reactive
HCV NS-3 reactive
HCV NS-3 reactive
HCV NS-3 reactive
HCV NS-3 reactive
FCV NS-3 reactive
FCV NS-3 reactive
HCV NS-3 reactive
FCV NS-3 reactive
FCV NS-3 reactive
HCV NS-3 reactive
FCV NS-3 reactive
Sequence encoded i
Hepatitis C virus
Hepatitis C virus
Hepatitis C virus
FCV NS-1 FCV

ALIGNMENTS

1: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
4: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
5: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
6: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
7: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
8: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
9: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
110: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
111: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
112: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
113: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
114: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
115: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
116: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
117: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
118: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
120: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
121: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*
122: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1999.DAT:*

111. 122. 133. 174. 175. 170.

Polypeptide encode Hepatitis C virus Hepatitis C virus Hepatitis C virus

AAR14556 AAR81943 AAW70827 AAW80515

```
Hepatitis B virus polymerase; cytotoxic T cell response; prophylactic; vaccine; chronic; acute HBV infection; carrier.
                                                                                                                                                                                                                                                                           New peptides inducing cytotoxic T lymphocytes to hepatitis B virus - are regions of HB polymerase protein, for treating acute and chronic infections
                                                                 JY-EBV cells pre-incubation peptide #1
          A.
        AAR70080 standard; peptide; 10
                                                                                                                                                                           94WO-US08685.
                                                                                                                                                                                               93US-0100870.
                                                                                                                                                                                                                 (SCRI ) SCRIPPS RES INST.
                                                                                                                                                                                                                                                        WPI; 1995-082004/11.
                                                                                                                Hepatitis B virus.
                                                                                                                                                                           01-AUG-1994;
                                                                                                                                                                                              02-AUG-1993;
                                               06-0CT-1995
                                                                                                                                    WO9503777-A.
                                                                                                                                                        09-FEB-1995
                                                                                                                                                                                                                                     Chisari FV;
                           AAR70080;
AAR70080
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Length

Query Match

Score

ş. Result

Example 2; Page 44; 85pp; English

JY-EBV cells pre-i Cytotoxic T-cell e Hepatitis C virus HCV1 NS3 peptide (Peptide from HCV-1

AAR84574 AAR84488 AAW39560 AAR70080

Description

T cell epitope/MHC HLA Class I motif Hepatitis C virus Anti-HCV antibody Anti-HCV antibody

AAW54634 AAY10138 AAY10440 AAR59858 AAR69538 AAR69526

10 10 10 10 10 53 62

100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0

11098765432

~

```
AAR84488 standard; peptide; 10 AA.
 1 klvalginav 10
                                                                                           AAR84488;
                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
        Peptides AAR70080-3 were pre-incubated with JY-EBV cells in an assay to detect the cytotoxic activity of cytotoxic T cells (CTL), that were challenged with hepatitis B virus (HBV) polymerase (HBpOl) epitopes e.g. the peptides GESRYVARL or SGLSRYVARL, to the pre-incubated cells. The peptide presented here is a hepatitis type C virus fragment. The HBpOl epitope peptides (see AAR70044-59) can be used, prophylactically as vaccines, together with, or conjugated to, HBV helper epitopes (AAR70060-4). The peptides can be used, particularly ax vivo, co stimulate CTL cells, which cells can be reintroduced into patients who have chronic or acute HBV infections or are carriers, especially in treatments to prevent conversion from acute to chronic infections.
                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides from the core, El. E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptide specific cytotoxic T-cell activity. The peptides AAR84570-77 were found to have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                       .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Novel molecule comprising a cytotoxic \mathbb T cell epitope – used vaccinate against hepatitis \mathbb C viral infection
                                                                                                                                                                                                                                                                                                                                                                                                                                        Cytotoxic T-cell epitope, aa 1406-1415 of HCV-1 NS3 region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 10;
                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus; HCV; epitope; vaccine; immunogen
                                                                                                                                                                                                          ch 100.0%; Score 45; DB 16; 1
1 Similarity 100.0%; Pred. No. 0.0091;
10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ouery Match 100.0%; Score 45; DB 16; Best Local Similarity 100.0%; Pred. No. 0.0091; Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                          AAR84574 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; Page 67; 85pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94US-0214650.
                                                                                                                                                                                                                                                                                                                                                                                                                25-APR-1996 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (SCRI ) SCRIPPS RES INST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chisari FV;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1995-336941/43.
                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                 1 KLVALGINAV 10
                                                                                                                                                                                                                                                                               Hepatitis C virus.
                                                                                                                                                                     10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-MAR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9525122-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-SEP-1995
                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                    AAR84574;
                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cerny A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                               AAR84574
                                                                                                                                                                                                                                                                                                                                                            ò
```

```
T cell epitope; immune response; human leukocyte antigen; HLA Class I; vaccine; immunogenic; major histocompatablilty complex; MHC; B cell; disease; anti-tumour; anti-viral.
                                                                           Hepatitis C virus; HCV; immunogen; NS3 region; non-structural region; immunodominant; T cell epitope; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peptides comprising at least 8 contiguous amino acids from the HCV NS3 region between positions 1188 and 1463 and containing a T-cell stimulating epitope are used in HCV immunogenic compositions. The present sequence is a specific example of a T-cell epitope-containing peptide which is preferred for use in the composition.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C Virus immunogenic polypeptide contg. a T-cell stimulating epitope - from core, El, E2 and NS3 regions, useful in production of vaccines, therapeutic agents, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HCV1 NS3 peptide (pos.1406-1415) capable of binding to HLA-A*0201.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 45; DB 16;
Pred. No. 0.0091;
                                        Hepatitis C virus NS3 region epitopic peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                            Maertens G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 18; Page 68; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW39560 standard; peptide; 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                            Deleys R, Leroux-Roels G,
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                     (INNO-) INNOGENETICS NV
                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1995-193822/25.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus.
                                                                                                                                                                                W09512677-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W09741440-A1.
                                                                                                                                                                                                                                                               28-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-JUN-1998
06-JAN-1997
                                                                                                                                                                                                                           11-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW39560;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW39560
```

ö

;

Gaps

; 0

Indels

1 KLVALGINAV 10

ò

```
WPI; 1998-230631/20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1999-120514/10.
                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                      1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                 10 AA;
                                                                                                                                                                                             and parasites.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .0-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                            12-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kuendig TM,
                                                                                                                                                                                                                  sequence
                                                                                                                                                                                                                                                                                                                                                                                        AAY10138;
                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                        AAY10138
   δ
                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                         imunogenic T-cell peptide epitopes present in polypeptide antigens. The immunogenic T-cell peptide epitopes present in polypeptide antigens. The method involves the identification of peptide sequences capable of binding to an HLA (human leukocyte antigen) class I molecule and measuring the binding of this epitope peptide to the HLA class I peptide. The stability of binding of the peptide and MHC (major historompatablily complex) class I molecule is measured on intact human B cells carrying the MHC molecule at their cell surfaces. The method can be used to select peptide epitopes for generating vaccines against a disease associated with the polypeptide, e.g. cancers or AIDS. The peptide epitopes are sepecially T-cell peptide epitopes with strong anti-tumour and anti-viral immune responses. Peptide ased to determine conserved hepatitis C virus type I NS3 derived peptide used to determine the stability of HLA-A*0201 complexed with known CTL lymphocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mannose; antigen; antigen-presenting cell; mannosylated peptide; T cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                        Method of selecting T cell peptide epitope(s) - by measuring the stability of HLA class I-peptide complexes on intact B cells
                                                                                                                   Van Der Burg SH;
                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 45; DB 18; Length 10; 100.0%; Pred. No. 0.0091; live 0; Mismatches 0; Indels
                                                                                                                  Toes REM,
                                                                                            SCI SEED CAPITAL INVESTMENTS BV.
                                                                                                                Kast WM, Melief CJM, Offringa R,
                                                                                                                                                                                       Example 2; Page 66; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW54634 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide from HCV-1 1406-1415
                               97WO-NL00229.
                                                   96EP-0203670
                                                               96EP-0201145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97WO-NL00536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96EP-0202701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25-SEP-1998 (first entry)
                                                                                  (UYLE-) RIJKSUNIV LEIDEN.
(SCIS-) SCI SEED CAPITAL
                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (UYLE-) RIJKSUNIV LEIDEN.
                                                                                                                                     WPI; 1997-549891/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           vaccine; treatment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drijfhout JW,
                              28-APR-1997;
                                                   23-DEC-1996;
                                                              26-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9813378-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36-SEP-1996;
          06-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         02-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAW54634;
                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ß
                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW54634
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

```
The peptides AAW54559-W54809 are examples of peptides to which at least 1 (preferably 2) mannose can be attached to increase their uptake as antigens by antigen. Presenting cells. Uptake of agonist mannosylated peptides will increase the T cell response, whereas uptake of antagonist peptides blocks the T cell response. Blocking binding of immunogenic autoantigens can be used in treatment of type I diabetes, rheumatoid arthritis, graft rejection etc., also to induce T-cell non-responsiveness. Vaccines containing mannosylated antigen are used to prevent or treat infections by, e.g. bacteria, viruses, fungi, helminths
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to
        adding mannose useful in,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Inducing a cytotoxic T lymphocyte response - by maintaining a level
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
Increasing uptake and presentation of antigen(s) - by residue(s) to antigen for increasing T cell response, e.g. vaccines against viral infection(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 45; DB 19;
1larity 100.0%; Pred. No. 0.0091;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T cell epitope/MHC ligand SEQ ID NO:68.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 25; 199pp; English.
                                                                                                                                                                     Disclosure; Page 28; 47pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY10138 standard; Peptide; 10 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98WO-US14289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97CA-2209815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Simard JJL;
```

ö

```
;
                                                                          an embryonic antigen, an oncogene antigen, a mutated tumour-Suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes place in the miltau of the lymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAY10071 to AAX10639 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of
Induce an immunological CTL response in the mammal, and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen,
                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                      Length 10;
                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                                  100.0%; Score 45; DB 20;
100.0%; Pred. No. 0.0091;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HLA Class I motif peptide SEQ ID NO:370.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Page 40; 199pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAY10440 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0988320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97CA-2209815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98WO-US14289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                            10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kuendig TM, Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                    1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                                                                             10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-JAN-1999.
                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAY10440;
                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY10440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or ADDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes place in the milieu of the lymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and rechrculating through the body. AAY10071 to AAX1063 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     antibodies and can provide highly sensitive and specific assays for diagnosis and monitoring. It can also be used for prevention/treatment of non-A non-B hepatitis.
                                                                                                                                                                            6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The HCV NS-3 region peptide is highly immunoreactive with HCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 45; DB 15; Length 51;
Pred. No. 0.056;
Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New peptide(s) corresponding to hepatitis C virus - used detection of hepatitis C virus antibodies and treatment or prevention of infection or for prodn. of antibodies
                                                                                                                                                                            Indels
                                                                                                                                                                        ,
0
                                                                                                                                                100.0%; Score 45; DB 20;
100.0%; Pred. No. 0.0091;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus; NS-3 antiqen; diagnostic.
                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus NS-3 antigen fragment.
                                                                                                                                                                                                                                                                                                 AAR59858 standard; Protein; 51 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 2; Page 46; 52pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93WO-EP03478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92EP-0203802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       93EP-0201854
                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                  Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Habets WJA;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Escherichia coli JM101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ALKU ) AKZO NOBEL NV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1994-234210/28.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                       1 KLVALGINAV 10
                                                                                                                                                                                                                     1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAQ69124.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-DEC-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-DEC-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                     23-JAN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9413700-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-JUN-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Boender PJ,
                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                            AAR59858;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                        œ
                                                                                                                                                                                                                                                                                     AAR59858
  8
                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
```

Ŋ

```
93US-0083947.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1995-052105/07.
                                                          WPI; 1995-052105/07.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wang CY;
                                         Hosein B, Wang CY;
                                                                                                                                                                                                                                           1 KLVALGINAV 10
                                                                                                                                                                                                                                                     62 AA;
         28-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-JUN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                    409500670-A
                                                                                                                                                                                                                                                                                                                                                                                                                                      05-JAN-1995
                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hosein B,
                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                        AAR69539;
                                                                                                                                                                                                                                                                                       11
 δλ
                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                            AAR69523-R69545 are anti-hepatitis C virus (HCV) antibody immunoreactive peptides, based on the PepB (AAR69529) or the PepC (AAR69534) sequences. These peptides, in linear or branched dimer compsns. are used in immunoassays for the detection of HCV infections, the peptide compsns. may also be useful in vaccines against these infections.
                                                                                                                                                                                                                                                                                                                                                                                                   .;
0
                                                                                                                                                                                                                                                   Linear and branched peptide(s) comprising, e.g. PepB and PepC useful in vaccines and assays for non-A, non-B hepatitis
                                                                                   Hepatitis C virus; HCV; non-A non-B; antibodies; vaccines;
immunoreactive peptide; PepB; L4A; infection detection assay.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus; HCV; non-A non-B; antibodies; vaccines; immunoreactive peptide; PepB; L1A; infection detection assay.
                                                                                                                                                                                                                                                                                                                                                                                 Query Match 100.0%; Score 45; DB 16; Length 53; Best Local Similarity 100.0%; Pred. No. 0.058; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                  Anti-HCV antibody immunoreactive PepB peptide L4A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Anti-HCV antibody immunoreactive PepB peptide L1A.
                AAR69538 standard; peptide; 53 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR69526 standard; peptide; 62 AA.
                                                                                                                                                                                                                                                                             Claim 8; Page 45; 58pp; English.
                                                                                                                                                                                                (UNBI-) UNITED BIOMEDICAL INC.
                                                                                                                                                                                 93US-0083947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94WO-US07088.
                                                                                                                                                               94WO-US07088
                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                  NPI; 1995-052105/07
                                                                                                                                                                                                                  Hosein B, Wang CY;
                                                                                                                                                                                                                                                                                                                                                                                                                             1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                         53 AA;
                                                                                                                                                               22-JUN-1994;
                                                                                                                                                                                 28-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-JUN-1994;
                                                 05-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-SEP-1995
                                                                                                                                              05-JAN-1995.
                                                                                                                             409500670-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9500670-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-JAN-1995
                                                                                                             Synthetic.
                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR69526;
                                 AAR69538
σ
        AAR69538
RESULT
                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                            AAR69523-R69545 are anti-hepatitis C virus (HCV) antibody immunoreactive peptides, based on the PepB (AAR69529) or the PepC (AAR69534) sequences. These peptides, in linear or branched dimer compsns. are used in immunoassays for the detection of HCV infections, the peptide compsns. may also be useful in vaccines against these infections.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR69523-R69545 are anti-hepatitis C virus (HCV) antibody immunoreactive peptides, based on the PepB (AAR69529) or the PepC (AAR69534) sequences. These peptides, in linear or branched dimer compsns. are used in immunoassays for the detection of HCV infections, the peptide compsns. may also be useful in vaccines against these infections.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                Linear and branched peptide(s) comprising, e.g. PepB and PepC useful in vaccines and assays for non-A, non-B hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Linear and branched peptide(s) comprising, e.g. PepB and PepC useful in vaccines and assays for non-A, non-B hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus; HCV; non-A non-B; antibodies; vaccines; immunoreactive peptide; PepB; L4B; infection detection assay.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 45; DB 16; Length 62; 100.0%; Pred. No. 0.069; 1.ve 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Anti-HCV antibody immunoreactive PepB peptide L4B.
                                                                                                                                                                                                                                                                                                                                                           Claim 8; Pages 38-39; 58pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR69539 standard; peptide; 62 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 8; Page 46; 58pp; English.
(UNBI-) UNITED BIOMEDICAL INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (UNBI-) UNITED BIOMEDICAL INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93US-0083947.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
```

ö

χX

ò pp

```
The HCV NS-3 region peptide is highly immunoreactive with HCV antibodies and can provide highly sensitive and specific assays for diagnosis and monitoring. It can also be used for prevention/treatment of non-A non-B hepatitis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus; HCV; non-A non-B; antibodies; vaccines; immunoreactive peptide; PepB; Cl3; infection detection assay.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 45; DB 15; Length 67; Larity 100.0%; Pred. No. 0.075; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                       New peptide(s) corresponding to hepatitis C virus - used for detection of hepatitis C virus antibodies and treatment or prevention of infection or for prodn. of antibodies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Anti-HCV antibody immunoreactive PepB peptide C13.
                                       Hepatitis C virus; NS-3 antigen; diagnostic.
           Hepatitis C virus NS-3 antigen fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                              Claim 2; Page 44-45; 52pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ¥Ÿ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR69524 standard; peptide; 71
                                                                                                                                                     93WO-EP03478
                                                                                                                                                                               92EP-0203802
93EP-0201854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94WO-US07088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93US-0083947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label= Nva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                    Habets WJA;
                                                                   Escherichia coli JM101.
                                                                                                                                                                                                                         (ALKU ) AKZO NOBEL NV.
                                                                                                                                                                                                                                                                            WPI; 1994-234210/28.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB; AAQ69122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Key
Modified-site
                                                                                                                                                   07-DEC-1993;
                                                                                                                                                                               07-DEC-1992;
                                                                                                                                                                                             25-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-JUN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-JUN-1993;
                                                                                             WO9413700-A
                                                                                                                                                                                                                                                    Boender PJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-SEP-1995
                                                                                                                         23-JUN-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9500670-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-JAN-1995.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR69524;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR69524
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The HCV NS-3 region peptide is highly immunoreactive with HCV antibodies and can provide highly sensitive and specific assays for diagnosis and monitoring. It can also be used for prevention/reatment of non-8 hepatitis.
                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                    Length 62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New peptide(s) corresponding to hepatitis C virus - used for detection of hepatitis C virus antibodies and treatment or prevention of infection or for prodn. of antibodies
                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                 100.0%; Score 45; DB 16; I
100.0%; Pred. No. 0.069;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 45; DB 15;
100.0%; Pred. No. 0.073;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                    Hepatitis C virus; NS-3 antigen; diagnostic.
                                                                                                                                                                                                                                                                                          Hepatitis C virus NS-3 antigen fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 2; Page 44-45; 52pp; English.
                                                                                                                                                                                                         AAR59857 standard; Protein; 65 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR59856 standard; Protein; 67 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                    93WO-EP03478
                                                                                                                                                                                                                                                                                                                                                                                                                                                             92EP-0203802,
93EP-0201854,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-JAN-1995 (first entry)
                                              Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Boender PJ, Habets WJA;
                                                                                                                                                                                                                                                                                                                                                Escherichia coli JM101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ALKU ) AKZO NOBEL NV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1994-234210/28.
                                                                                                          1 KLVALGINAV 10
                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 KLVALGINAV 10
          ¥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-PSDB; AAQ69123.
          62
                                                                                                                                                                                                                                                               23-JAN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                   07-DEC-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-DEC-1992;
                                                                                                                                                                                                                                                                                                                                                                                                       23-JUN-1994
                                                                                                                                                                                                                                                                                                                                                                           WO9413700-A
                                                                                                                                                                                                                                     AAR59857;
          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR59856;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                           AAR59857
```

g δ

;

Gaps

. 0

```
δ
                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                AAR69523-R69545 are anti-hepatitis C virus (HCV) antibody immunoreactive peptides, based on the PepB (AAR69529) or the PepC (AAR69534) sequences. These peptides, in linear or branched dimer compsns. are used in immunoassays for the detection of HCV infections, the peptide compsns. may also be useful in vaccines against these infections.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR69523-R69545 are anti-hepatitis C virus (HCV) antibody immunoreactive peptides, based on the PepB (AAR69529) or the PepC (AAR6954) sequences. These peptides, in linear or branched dimer composis. are used in immunoassays for the detection of HCV infections, the peptide composis. may also be useful in vaccines against these infections.
                                                                                                                                                                                                                                                                                                                           ő
                                                                                 Linear and branched peptide(s) comprising, e.g. PepB and PepC useful in vaccines and assays for non-A, non-B hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Linear and branched peptide(s) comprising, e.g. PepB and PepC useful in vaccines and assays for non-A, non-B hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus; HCV; non-A non-B; antibodies; vaccines; immunoreactive peptide; PepB; L1B; infection detection assay.
                                                                                                                                                                                                                                                                                           100.0%; Score 45; DB 16; Length 71; ilarity 100.0%; Pred. No. 0.08; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Anti-HCV antibody immunoreactive PepB peptide L1B.
                                                                                                                       Claim 8; Pages 36-37; 58pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR69527 standard; peptide; 71 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 8; Page 39; 58pp; English.
(UNBI-) UNITED BIOMEDICAL INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (UNBI-) UNITED BIOMEDICAL INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94WO-US07088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93US-0083947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1995-052105/07.
                                                    WPI; 1995-052105/07
                          Wang CY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hosein B, Wang CY;
                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                     1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                    71 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22-JUN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9500670-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-JAN-1995
                          Hosein B,
                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR69527;
                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR69527
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
```

```
Ouery Match
Best Local Similarity 100.0%; Score 45; DB 16; Length 71;
Best Local Similarity 100.0%; Pred. No. 0.08;
Matches 10; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 KLVALGINAV 10
| | | | | | | | | | |
Db 19 klvalginav 28

Search completed: August 23, 2002, 10:01:00
Job time: 390 sec
```

```
Fri Aug 23 10:30:17 2002
```

```
(without alignments)
3.954 Million cell updates/sec
                                                                                                      August 23, 2002, 09:57:52; Search time 61.77 Seconds
4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                       231628 segs, 24425594 residues
GenCore version
Copyright (c) 1993 - 2000
                                                                      - protein search, using sw model
                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                       US-08-854-825-28
45
                                                                                                                                                                                                                                                                                                                                                                          Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                1 KLVALGINAV 10
                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                 Scoring table:
                                                                  OM protein
                                                                                                                                                                                                                Sequence:
                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                      Run on:
```

1: /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/2/iaa/FCTUS_COMB.pep:*
6: /cgn2_6/ptodata/2/iaa/FCTUS_COMB.pep:*

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Issued_Patents_AA:*

Database

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result		Query				
No.	Score		Match Length DB	DB	ID	Description
	45	100.0	10	: -	US-08-214-650-28	Sequence 28
2	45	100.0	53	Н	US-08-083-947-16	Sequence 1
Э	45	100.0	53	2	PCT-US94-07088-16	Sequence 1
4	45	100.0	62	, - 1	US-08-083-947-4	Sequence 4
Ω	45	45 100.0	62	Н	US-08-083-947-17	Sequence 1
9	45	100.0		Ŋ	PCT-US94-07088-4	Sequence 4
7	45	100.0	62	Ŋ	PCT-US94-07088-17	Sequence 1
•				,		

	8, Appl	5, Appl	6, Appl	Appli	', Appl	Appli	', Appl	Appli	Appli	Appli	Appli	8, Appl		9, Appl	Appli	Appl Appl	Appli	Appli	Appli	Appli	Appli	Appli	, Appl	Appl Appl	Appl Appl	i, Appl	Appli	
ion	. 2	e 10	Н	že 4	, i	e 4	, 1,	se 2,	že 5,	se 2,	, 5	П	Ч	Н	,e 5	e 19	5,	je e	e e	, i	je e	,e 4	ie 10	je 13	13	je 15	;e 1,	
Description	Seguence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sednence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	
	650-28	947-16	7088-16	947-4	947-17	7088-4	7088-17	947-2	947-5	7088-2	7088-5	947-18	7088-18	947-19	550-5	7088-19	3660-5	550-6	3-0998	947-1	947-6	550-4	550-10	550-12	550-13	550-15	7088-1	
Œ	JS-08-214-650-2	JS-08-083-947-16	PCT-US94-07088-16	JS-08-083-947-4	JS-08-083-947-1	PCT-US94-07088-4	PCT-US94-07088-17	JS-08-083-947-2	JS-08-083-947-5	PCT-US94-07088-	PCT-US94-07088-5	JS-08-083-947-18	PCT-US94-07088-18	JS-08-083-947-19	JS-08-530-550-5	PCT-US94-07088-1	PCT-US95-13660-5	JS-08-530-550-6	PCT-US95-13660-6	JS-08-083-947-	JS-08-083-947	JS-08-530-550-	JS-08-530-550-	JS-08-530-550-	JS-08-530-550-	JS-08-530-550-1	PCT-US94-07088	
DB		_	2	-	_	Ŋ	Ŋ	_	-	Ŋ	Ŋ	_	2	_	_ _	5	S	-	ς.	_	_	-	-	_	_	-	υ	
Query Match Length	10	53	53	62	62	62	62	, 71	71	71	71	72	72	75	75	75	75	77	77	81	81	81	81	81	81	81	81	
Query Match	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Score	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	
sult No.	-	7	9	4	Ω.	9	7	æ	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	

Appli Appli	, Appl	, Appl	Appli	Appli	, Appl	, Appl	Appli	Appli	Appli	Appli	Appli	Appli	Appli
6,	10	13	3,6	ĺω	21	22,	′	,	ó	8	æ	ω	8
Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence	Sequence
PCT-US94-07088-6 PCT-US95-13660-4	PCT-US95-13660-10 PCT-US95-13660-12	PCT-US95-13660-13 PCT-US95-13660-15	US-08-083-947-8 US-08-530-550-21	PCT-US94-07088-8	PCT-US95-13660-21	US-08-444-818-22	US-08-083-947-7	PCT-US94-07088-7	US-08-411-913-9	US-07-853-985A-8	US-07-681-703B-8	US-08-184-236-8	US-08-407-410B-8
N N	S	N N		S	2	4	\vdash	S	Н		-	Н	7
81 81	81	81 81	84 84	84	84	8	63	93	102	159	159	159	159
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
45 45	4 5	4 4 7 5	45	45	45	45	45	45	45	45	45	45	45
288	30	33.23	3 3 4 5 5	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

```
APPLICANT: Crisari, Francis V.
APPLICANT: Cerny, Andreas
TITLE OF INVENTION: PEPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:
ADDRESSEE: Leydig, Voit & Mayer
STREET: Two Prudential Plaza, Suite 4900
CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                  ZIP: 60601

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION NATR:
APPLICATION NUMBER: US/08/214,650
                   Sequence 28, Application US/08214650; Patent No. 5709995; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Silvert, Donald J.
REGISTRATION NUMBER: 375.2
REFERENCE/DOCKET NUMBER: 6123
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 616-5600
TELER: 25-3533
INFORMATION FOR SEQ ID NO: 28:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 10 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; MOLECULE TYPE: peptide US-08-214-650-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid
                                                                                                                                                                                                                                                                                                      STATE: IL
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
US-08-214-650-28
```

Gaps ; 0 100.0%; Score 45; DB 1; Length 10; 100.0%; Pred. No. 0.0035; ive 0; Mismatches 0; Indels Query Match 100. Best Local Similarity 100. Matches 10; Conservative

ö

1 KLVALGINAV 10

δλ

```
APPLICANT: Wang, Chang Yi
APPLICANT: Wang, Chang Yi
APPLICANT: Hosein, Barbara
TITLE OF INVENTION: No. 5639594el Linear and Branched Peptides Effective
TITLE OF INVENTION: in Diagnosing and Detecting No. 5639594-A, No. 5639594-B He
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 45; DB 5; Length 53; Best Local Similarity 100.0%; Pred. No. 0.022; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION DATA:
FILING DATE: 19930628
CLASSIFICATION 1424
PRIOR APPLICATION DATE: 0546,054
PRIOR APPLICATION NUMBER: 05946,054
APPLICATION NUMBER: 05946,054
FILING DATE: 15-SEP-1993
ATTONNEY/AGENT INFORMATION:
NAME: Wilson, M. Lisa
REGISTRATION NUMBER: 34045
                                                                                                              OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/07088
FILING DATE: 22-JUNE-1994
                                                                                                                                                                                                                                              CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/083,947
FILING DATE: 28-JUNE-1993
ATTORNEY/AGENT INFORMATION:
NAME: LIN, MARIA C.H.
REGISTRATION NUMBER: 29323
REFERENCE/DOCKET NUMBER: 1151-41(
TELECHONICHICATION INFORMATION:
TELEPHONE: (212)758-4800
TELEFAX: (212)751-6849
: INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHARACTERISTICS:
COMMANDION FOR SEQ ID NO: 16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
BEDIUM TYPE: Floppy disk
CMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 4, Application US/08083947
Patent No. 5639594
GENERAL INFORMATION:
                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy Disk
COMPUTER: IBM PC COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: M. Lisa Wilson
STREET: 25 Davids Drive
CITY: Hauppauge
STATE: NY
COUNTRY: USA
ZIP: 11788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: 20
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         : 53 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; MOLECULE TYPE: peptide PCT-US94-07088-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10 KLVALGINAV 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-083-947-4
                                                                                                    Sequence 16, Application US/08083947

Sequence 16, Application US/08083947

Patent No. 5639594

GENERAL INFORMATION: Wang Yi

APPLICANT: Wang, Chang Yi

APPLICANT: Hosein, Barbara

TITLE OF INVENTION: No. 5639594el Linear and Branched Peptides Effective

TITLE OF INVENTION: In Diagnosing and Detecting No. 5639594-B, No. 5639594-B Hepat

NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 45; DB 1; Length 53; 100.0%; Pred. No. 0.022; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/083,947
FILING DATE: 19930628
CLASSIFICATION: 424
PRIOR APPLICATION NUMBER: US 946,054
FILING DATE: 15-SEP-1993
ATTORNEY/AGENT INPOMBER: US 946,054
FILING DATE: 15-SEP-1993
ATTORNEY/AGENT INPOMBATION:
NAME: Allow A Lica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
PCT-US94-07088-16
Sequence 16, Application PC/TUS9407088
GENERAL INVAMATION:
APPLICANT: Wang, Chang Yi
APPLICANT: HOSein, Barbara
TITLE OF INVENTION: Peptides Effective In
TITLE OF INVENTION: Diagnosing And Detecting
TITLE OF INVENTION: Non-A, Non-B Hepatitis
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Maria C.H. Lin
STREET: 345 Park Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: WILSON, M. Lisa
REGISTRATION NUMBER: 34045
REGISTRATION NUMBER: 2000Z
RELECOMMUNICATION INFORMATION:
TELEPHONE: (516)273-2828
TELEFAX: (516)273-1717
INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHARACTERISTICS:
LENGTH: 53 amino acids
                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: M. Lisa Wilson
STREET: 25 Davids Drive
CITY: Hauppauge
STATE: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.
Best Local Similarity 100.
Matches 10. Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-083-947-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino acid
1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10 KLVALGINAV 19
                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          11788
                                                                                          US-08-083-947-16
                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 5; Length 62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 0.026;
                                                      GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Wang, Chang Yi
APPLICANT: Hosein, Barbara
TITLE OF INVENTION: Peptides Effective In
TITLE OF INVENTION: Diagnosing And Detecting
TITLE OF INVENTION: Diagnosing And Detecting
TITLE OF INVENTION: Non-A, Non-B Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel Linear And Branched
Peptides Effective In
Diagnosing And Detecting
Non-A, Non-B Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy Disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/07088
PTI-ING DATE: 22-JUNE-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.0%; Score 45; Best Local Similarity 100.0%; Pred. No. C Matches 10; Conservative 0; Mismatche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 17, Application PC/TUS9407088
GENERAL INFORMATION:
APPLICANT: Wang, Chang Yi
APPLICANT: Hosein, Barbara
TITLE OF INVENTION: Peptides Effectiv
TITLE OF INVENTION: Diagnosing And De
TITLE OF INVENTION: Diagnosing And De
TITLE OF INVENTION: Diagnosing And De
TITLE OF INVENTION: Non-A, Non-B Hepa
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08,083,947
FILING DATE: 28-JUNE-1993
ATTORNEY/AGENT INFORMATION:
NAME: LIN, MARIA C.H.
REGISTRANTION NUMBER: 29323
REFERENCE/DOCKET NUMBER: 1151-410
                                                                                                                                                                                                                                                                  ADDRESSEE: Maria C.H. Lin
STREET: 345 Park Avenue
CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Maria C.H. Lin
STREET: 345 Park Avenue
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (212)758-4800
TELEFAX: (212)751-6849
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                      TITLE OF INVENTION: NOVE TITLE OF INVENTION: Pept TITLE OF INVENTION: Diagram of TITLE OF INVENTION: NON-NUMBER OF SEQUENCES: 23 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10 KLVALGINAV 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 7
PCT-US94-07088-17
                       RESULT 6
PCT-US94-07088-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PCT-US94-07088-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 17, Application US/08083947
Patent No. 5639594
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Wang, Chang Yi
APPLICANT: Hosein, Barbara
TITLE OF INVENTION:
TITLE OF INVENTION: in Diagnosing and Detecting No. 5639594-8, No. 5639594-B Hepat
                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 45; DB 1; Length 62; ilarity 100.0%; Pred. No. 0.026; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                           100.0%; Score 45; DB 1; Length 62; 100.0%; Pred. No. 0.026; .ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY.

21P: 11788

21P: 11788

COMPUTER READBLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/083,947

FILING DATE: 19930628

CLASSIFICATION: 424

PRIOR APPLICATION NUMBER: US/08/054

FILING DATE: 15-SEP-1993

ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Wilson, M. Lisa
REGISTRATION NUMBER: 34045
REFERENCE/DOCKET NUMBER: 200
TELECOMMUNICATION INFORMATION:
TELEPHONE: (516)273-2828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (516)273-1717
INFORMATION FOR SEQ ID NO: 17:
SEQUENCE CHARACTERISTICS:
LENGTH: 62 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: M. Lisa Wilson
STREET: 25 Davids Drive
(516)273-2828
               TELEFAX: (516)273-1717
INFORMATION FOR SEQ ID NO: 4
SEQUENCE CHARACTERISTICS:
LENGTH: 62 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                           Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                        ; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-083-947-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                             1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                   10 KLVALGINAV 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hauppauge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19 KLVALGINAV 28
TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-083-947-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY:
STATE:
                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                    qq
```

```
Sequence 5, Application US/08083947

Sequence 5, Application US/08083947

Batent No. 5639594

GENERAL INFORMATION:

APPLICANT: Wang, Chang Yi

APPLICANT: HOsein, Barbara

TITLE OF INVENTION: in Diagnosing and Detecting No. 5639594-B He

NUMBER OF SEQUENCES: 3

CORRESPONDENCE ADDRESS:
ADDRESSEE: M. Lisa Wilson

STREET: 25 Davids Drive

CITY: Hauppauge
                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                 100.0%; Score 45; DB 1; Length 71; 100.0%; Pred. No. 0.03; 0; Indels ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.0%; Score 45; DB 1; Length 71; Best Local Similarity 100.0%; Pred. No. 0.03; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER TAINOR
COMPUTER TEADABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: LIBM PC compatible
COMPUTER: LIBM PC compatible
COMPUTER: DAY
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/083,947
FILING DATE: 19930628
CLLASSIFICATION: 424
PRICATION NUMBER: US 946,054
FILING DATE: 15.58P-1993
ATTORNEY/AGENT INFORMATION:
NAME: Wilson, M. Lisa
REGISTRATION NUMBER: 34045
REFERENCE/DOCKET NUMBER: 34045
REFERENCE/DOCKET NUMBER: 30002
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                               ; NAME/KEY: Modified-site
; LOCATION: 6
;: OTHER INFORMATION: /note= "NORVALINE"
US-08-083-947-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: 5: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : (516)273-2828
(516)273-1717
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 71 amino acids
                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                              TOPOLOGY: linear
MOLECULE TYPE: peptide
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; MOLECULE TYPE: peptide US-08-083-947-5
                                             LENGTH: 71 amino TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                      19 KLVALGINAV 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: US
ZIP: 11788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
TELEFAX: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-083-947-5
                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 45; DB 5; Length 62; 100.0%; Pred. No. 0.026; 1.1ve 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER EADABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: PatentIn Release #1.0, Version #1.25
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/083,947
FILING DATE: 19930628
CLLASSIFICATION: A24
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 946,054
FILING DATE: 15-SEP-1993
ATTORNEY/AGENT INFORMATION:
NAME: WAISON, M. Lisa
REGISTRATION NUMBER: 34045
REFERENCE/COMPUTION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                        1151-4101PC1
COMUTER READABLE FORM:
MEDIUM TYPE: Floppy Disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/07088
FILING DATE: 22-JUNE-1994
                                                                                                                                                             CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/083,947
FILING DATE: 28-JUNE-1993
ATTORNEY/AGENT INFORMATION:
NAME: LIN, MARIA C.H.
REGISTRATION NUMBER: 29323
REFERENCE/DOCKET NUMBER: 1151-41
TELEPHONE: (212)758-4800
TELEFAX: (212)751-6849
INFORMATION FOR SEQ ID NO: 17:
SEQUENCE CHARACTERISTICS:
LENGTH: 62 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ) MOLECULE TYPE: peptide PCT-US94-07088-17
                                                                                                                                                                                                                                                                                                                                                                                                                                             amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19 KLVALGINAV 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
```

QQ ò

S

```
Sequence 18, Application US/08083947
Patent No. 5639594
GENERAL INFORMATION:
APPLICANT: Wang, Chang Yi
APPLICANT: Hosein, Barbara
TITLE OF INVENTION: No. 5639594e1 Linear and Branched Peptides Effective
TITLE OF INVENTION: in Diagnosing and Detecting No. 5639594-B He
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 45; DB 5; Length 71; 100.0%; Pred. No. 0.03;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1151-4101PC1
                                                                                                                                                                                                                                                                               APPLICATION NUMBER: PCT/US94/07088 FILING DATE: 22-JUNE-1994 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/08/083,947
FILING DATE: 19930628
                                                                                                                                   FILING DATE: 19930628
CIASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 946,054
                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/083,947
FILING DATE: 28-JUNE-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: LIN MARIA C.H.
REGISTRATION NUMBER: 29323
REFRENCE/DOCKET NUMBER: 1151
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212)758-4800
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 11788
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                   ADDRESSEE: Maria C.H. Lin
STREET: 345 Park Avenue
CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: M. Lisa Wilson
STREET: 25 Davids Drive
CITY: Hauppauge
                                                                                                                                                                                                                                       SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 71 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
    NUMBER OF SEQUENCES: 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: peptide PCT-US94-07088-5
                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-083-947-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 45; DB 5; Length 71; 100.0%; Pred. No. 0.03; Live 0; Mismatches 0; Indels
                                                                                                                                                      APPLICANT: Wang, Chang Yi
APPLICANT: Wang, Chang Yi
APPLICANT: Hosein, Barbara
TITLE OF INVENTION: Novel Linear And Branched
TITLE OF INVENTION: Peptides Effective In
TITLE OF INVENTION: Non-A, Non-B Hepatitis
NUMBER OF SEQUENCES: 23
NUMBER OF SEQUENCES: 23
ADDRESSEE: Maria C.H. Lin
STREET: 345 Park Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hosein, Barbara
VENTION: Novel Linear And Branched
VENTION: Peptides Effective In
VENTION: Diagnosing And Detecting
VENTION: Non-A, Non-B Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: Floppy Disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/07088
FILING DATE: 22-JUNE-1994
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; OTHER INFORMATION: /note= "NORVALINE" PCT-US94-07088-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1151-4101PC1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Wang, Chang Yi
APPLICANT: Wang, Chang Yi
TITLE OF INVENTION: Novel Linear And
TITLE OF INVENTION: Peptides Effecti
TITLE OF INVENTION: Diagnosing And D
TITLE OF INVENTION: Diagnosing And D
TITLE OF INVENTION: Non-A, Non-B Hep
                                                                                                                    Sequence 2, Application PC/TUS9407088 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/083,947
FILING DATE: 28-JUNE-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: LIN, MARIA C.H.
REGISTRATION NUMBER: 2933
REFERENCE/DOCKET NUMBER: 1151
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212)758-4800
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 71 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 10154
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       amino acid
GY: linear
                                                                                                                                                                                                                                                                                                                                         STREET: 345 Park
CITY: New York
STATE: New York
COUNTRY: USA
19 KLVALGINAV 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19 KLVALGINAV 28
                                                                                                                                                                                                                                                                                                                                                                                                                    10154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
PCT-US94-07088-5
                                                                                               PCT-US94-07088-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION:
                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

ö

Gaps

ö

Indels

```
Sequence 19, Application US/08083947

Sequence No. 5639594

GENERAL INFORMATION: Chang Yi

APPLICANT: Wang, Chang Yi

APPLICANT: Hosein, Barbara

TITLE OF INVENTION: No. 5639594e1 Linear and Branched Peptides Effective

TITLE OF INVENTION: in Diagnosing and Detecting No. 5639594-B He

NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 45; DB 1; Length 75; 100.0%; Pred. No. 0.032; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 5, Application US/08530550
Patent No. 5736321
GENERAL INFORMATION:
APPLICANT: Mosein, Barbara
APPLICANT: Wang, Chang Yi
TITLE OF INVEWTION: Peptides Effective for Diagnosis and
TITLE OF INVEWTION: Detection of Hepatitis c Infection
NUMBER OF SEQUENCES: 51
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/083,947
FILING DATE: 19930628
CLASSIFICATION 1424
PRIOR APPLICATION NUMBER: US 946,054
FILING DATE: 15-SEP-1993
ATTONNEY/AGENT INPORMATION:
NAME: Wilson, M. Lisa
REGISTRATION NUMBER: 34045
Pred. No. 0.031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC COmpatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                          ő
                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: M. Lisa Wilson
STREET: 25 Davids Drive
CITY: Hauppauge
STATE: NY
COUNTRY: USA
ZIP: 11788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 20 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (516)273-2828
TELEFAX: (516)273-1717
INFORMATION FOR SEQ ID NO: 19:
SEQUENCE CHARACTERISTICS:
LENGTH: 75 amino acids
               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
                   Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.

Best Local Similarity 100.

Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; MOLECULE TYPE: peptide US-08-083-947-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid
                                                                               1 KLVALGINAV 10
                                                                                                        1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32 KLVALGINAV 41
                                                                                                                                                                                     RESULT 14
US-08-083-947-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-530-550-5
                                                                                  οy
                                                                                                                         рp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 45; DB 1; Length 72; Best Local Similarity 100.0%; Pred. No. 0.031; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 18, Application PC/TUS9407088

GENERAL INFORMATION:
APPLICANT: Wang, Chang Xi
APPLICANT: Hosein, Barbara
ITLE OF INVENTION: Novel Linear And Branched
TITLE OF INVENTION: Diagnosing And Detecting
ITLE OF INVENTION: Diagnosing And Detecting
TITLE OF INVENTION: Non-A, Non-B Hepatitis
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1151-4101PC1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy Disk
COMPUTER: IBM PC COMPAtible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/07088
FILING DATE: 22-JUNE-1994
        FILING DATE: 15-SEP-1993
ATTORNEY/AGENT INFORMATION:
NAME: Wilson, M. Lisa
REGISTRATION UNMBER: 34045
REFERENCE/DOCKET NUMBER: 2000Z
TELECOMMUNICATION INFORMATION:
TELEPRAY: (516)273-1717
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 72 aming acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/083,947
FILING DATE: 28-JUNE-1993
ATTORNEY AGENT INFORMATION:
NAME: LIN, MARIA C.H.
RECISTRATION NUMBER: 2923
REFERENCE/DOCKET NUMBER: 1151-41
TELEPHONE: (212)758-4800
TELEPAX: (212)751-6849
; INFORMATION FOR EQ. ID NO: 18:
SEQUENCE CHARACTERISTICS:
; LENGTH: 72 anino acid

LENGTH: 72 anino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Maria C.H. Lin
345 Park Avenue
                                                                                                                                                                                                                                                                                         ; MOLECULE TYPE: peptide US-08-083-947-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; MOLECULE TYPE: peptide PCT-US94-07088-18
                                                                                                                                                                                                                                                        amino acid
                                                                                                                                                                                                                                                                     TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 13
PCT-US94-07088-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
```

Length 72; DB 5; 100.0%; Score 45;

Query Match

ö

;

```
.;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 100.0%; Score 45; DB 1; Length 75;
Best Local Similarity 100.0%; Pred. No. 0.032;
Matches 10; Conservative 0; Mismatches 0; Indels
ADDRESSEE: M. Lisa Wilson
STREET: 25 Davids Drive
CITY: Hauppauge
STATE: NY
COUNTRY: USA
21P: 11788
COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBMP C compatible
OPERATING SYSTEM: PC-CDS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/530,550
FLING DATE:
CLASSIPICATION: 530
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 2000Z
FELERNEK-COCKET UNBER: 2000Z
TELECOMMUNICATION INFORMATION:
FELERNEC FOOCKET UNBER: 51073-1717
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 75 amino acid
TYPE: amino acid
TYPE: amino acid
TYPE: TYPE: peptide
US-08-530-550-5
```

Search completed: August 23, 2002, 09:57:52 Job time: 202 sec

ò

THIS PAGE BLAMK ASOND

٦

us-08-854-825-28.rpr

```
(without alignments)
12.191 Million cell updates/sec
                                                                                                                                            August 23, 2002, 09:56:47; Search time 78.82 Seconds
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

    protein search, using sw model

                                                                                               OM protein
                                                                                                                                              Run on:
```

US-08-854-825-28 45 1 KLVALGINAV 10 Perfect score: Sequence: Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Total number of hits satisfying chosen parameters:

283138 segs, 96089334 residues

Searched:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:* Database

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Description	ATPase/RNA helicas	genome polyprotein					beta-galactosidase	conserved hypothet	probable transcrip	genome polyprotein	genome polyprotein	genome polyprotein	conserved hypothet	DMC1/LIM15 homolog	RecA/Rad51/DMC1-li	phosphate permease	genome polyprotein	probable membrane	hypothetical prote	polypeptide - hepa	phosphoenolpyruvat	conserved hypothet	interferon precurs	probable ABC trans	2-hydroxyhepta-2,4	hypothetical prote	probable malate de	(S)-2-hydroxy-acid	probable permease
SUMMARIES	ΩI	568016	GNWVC3	GNWVCH	S40770	S18030	S21337	T29434	A69781	AB0828	GNWVTC	GNWVCJ	A45573	B69192	JC4092	T08838	A12097	GNWVTW	E64751	D72400	PC2219	F69015	B89999	JS0664	AI0702	T03559	T30504	C95873	H75446	н97339
	DB	7	7	٦	7	щ,	7	7	7	7	Н	Н	Н	7	~	7	7	-	7	7	7	7	7	7	~	~	~	7	7	7
	Length	386	3011	3011	3011	3010	216	595	229	282	3010	3010	3010	124	342	345	432	3010	310	402	876	62	120	194	248	280	336	345	353	440
æ	Ouery Match	100.0	100.0	100.0	97.8	84.4	82.2	80.0	77.8	7	۲.	77.8	7.			75.6	75.6	75.6	73.3	73.3	73.3	71.1	> 71.1	71.1	71.1	71.1	71.1	71.1	71.1	71.1
	Score	45	45	45	44	38	37	36	35	35	32	35	32	34	34	34	34	34	33	33	33	32		32	32	32	32	32	32	32
	Result No.	7	7	m	4	2	9	7	89	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29

hypothetical prote UDP-N-acetylmuramo	glutelin precursor glutelin glub-1 pr	amino acid permeas	t-complex protein	heat shock protein	protein kinase STE	hypothetical prote	hypothetical prote	conserved hypothet	probable RNaseP-as	hypothetical prote	hypothetical prote	hypothetical prote
D83819 C82722	S07640 S17762	A87302 G82809	856779	S21764	S51380	T15276	H87490	G82395	A85023	AI1904	G81018	S39831
2 2	77	2 0	7	7	-	7	~	7	7	~	7	7
445	499	500	568	619	738	2163	74	106	167	193	208	214
71.1	71.1	71.1	71.1	71.1	71.1	71.1	68.8	68.8	68.8	68.8	68.8	68.8
32	32	32	32	32	32	32	31	31	31	31	31	31
30 31	3 3 3 3	34	36	37	38	36	40	41	42	43	4.4	45

ALIGNMENTS

```
C;Accession: S68016
R;Jin, L.; Peterson, D.L.
Arch. Biochem. Biophys. 323, 47-53, 1995
A;Title: Expression, isolation, and characterization of the hepatitis C virus ATPase/A;Reference number: S68016; WUID:96019946
                                                                                                                                                                                                                                                                                                                                                                          A) Accession: 568016
A) Status: preliminary
A) Molecule type: mRNA
A) Residues: 1-386 < JIN>
C) Superfamily: hepatitis C virus genome polyprotein
C) Keywords: ATP; nonstructural protein; nucleotide binding; P-loop; polyprotein
F) 86-91/Region: nucleotide-binding motif A (P-loop)
F) 86-91/Region: nucleotide-binding motif B
F) 90-93/Region: DEXH motif
                                                               ATPASS/RNA helicase - hepatitis C virus (fragment)
C;Species: hepatitis C virus
C;Date: 04-Dec-1997 #sequence_revision 12-Dec-1997 #text_change 02-Feb-2001
RESULT
```

Gaps ö 100.0%; Score 45; DB 2; Length 386; 100.0%; Pred. No. 0.3; tive 0; Mismatches 0; Indels Query Match 100. Best Local Similarity 100. Matches 10; Conservative

ö

180 KLVALGINAV 189 1 KLVALGINAV 10 ò

Dρ

Ordination polyprotein - hepatitis C virus (strain HCV-1)
N:Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstruprotein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C; Species: hepatitis C virus
C; Date: 30-Sep-1992 #sequence_revision 30-Sep-1992 #text_change 19-Jan-2001
C; Accession: A39166; pQ0403; pQ0404
B; Choo, Q.L.; Rtchman, K.H.; Han, J.H.; Berger, K.; Lee, C.; Dong, C.; Gallegos, C.; Proc. Natl. Acad. Sci. U.S.A. 88, 2451-2455, 1991
A; Title: Genetic organization and diversity of the hepatitis C virus.
A; Accession: A39166
A; Accession: A39166

A Molecule type: mRNA
A; Residues: 1-3011 <CHO>
A; Residues: 1-3011 <CHO>
A; Residues: 1-3011 <CHO>
A; Residues: 1-3011 <CHO
A; Residues: 1-3011 <CHO
B; Richan, S.W.; McOmish, F.; Holmes, E.C.; Dow, B.; Peutherer, J.F.; Follett, E.; Yap, J. Gen. Virol. 73, 1131-1141, 1992
A; Title: Analysis of a new hepatitis C virus type and its phylogenetic relationship the A; Reference number: PQ0393; MUID:92268871
A; Reference number: PQ0403
A; Molecule type: genomic RNA

```
Ryckamoto, H.

submitted to the EMBL Data Library, March 1992

A; Reference number: $40770

A; Rocession: $40770

A; Rolecule type: genomic RNA

A; Roser references: EMBL:10749; NID:9221586; PIDN:BAA01582.1; PID:9221587

B; Okamoto, H.; Okada, S.; Sugiyama, Y.; Yotsumoto, S.; Tanaka, T.; Yoshizawa, H.; Tsu
Jpn. J. Exp. Med. 60, 167-177, 1990

A; Title: The 5'-terminal sequence of the hepatitis C virus genome.

A; Reference number: PC1284; MUID:91013116

A; Residues: 1-513 cok2>

A; Residues: 1-513 proprotein; hydrolase; nucleotide binding; P-loop; polyprotein; Septimental source: isolate HC-JI
C; Superfamily: hepatitis C virus genome polyprotein
C; Reywords: AFP; glycoprotein; hydrolase; nucleotide cok10

C; Reywords: AFP; glycoprotein; hydrolase; nucleotide delber
F; 116-191/Product: envelope protein M *status predicted cok10

F; 116-191/Product: nonstructural protein NSI *status predicted cok10

F; 130-123/Region: nucleotide-binding motif A (P-loop)
F; 1312-1317/Region: nucleotide-binding motif B
F; 1312-1317/Region: nucleotide-binding motif B
F; 1512-185/Product: nonstructural protein NaA* *status predicted cok10
F; 1616-185/Product: nonstructural protein NaBA* *status predicted cok10
F; 1616-186/Product: nonstructural protein NaBA* *status predi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome polyprotein - hepatitis C virus N; hepacivirin (EC 3.4.21.98) (nonstru protein NS4a; nonstructural protein NS4b; nonstructural protein NS5 C; Species: hepatitis C virus C; Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001 C; Accession: $40770; PC1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genome polyprotein - hepatitis C virus (isolate JK1)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru protein NS4s; nonstructural protein NS4s; nonstructural protein NS4s; hepatitis C virus
A;Variety: isolate JK1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Date: 19-May-2000 *sequence_revision 19-May-2000 *text_change 23-Mar-2001
C;Accession: S18030; $33570, A48332; $18029
R;Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
submitted to the EMBL Data Library, September 1991
A;Description: A whole genome of hepatitis C virus cDNA was isolated from a single pa
A;Reference number: $18028
                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1616-1862/Product: nonstructural protein NS4a #status predicted <N4A> 1863-2013/Product: nonstructural protein NS4b #status predicted <N4B> 2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
                                   Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 44; DB 1; Length 3011; Pred. No. 3.3;
                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
                                       Score 45; DB 1;
Pred. No. 2.1;
                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Mismatches
                                                                                                                          ;
                                       100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97.8%;
90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                              1406 KLVALGINAV 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |||||||:|||
|1406 KLVALGVNAV 1415
                                                                                                                                                                                                              1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                A. Experimental source: isolates E-b17
C. Superfamily: hepatitis C virus genome polyprotein
F. Hepatitis C apsid protein C #status predicted <CPC>
F. 115. Product: capsid protein C #status predicted <CPC>
F. 116. 191. Product: envelope protein M #status predicted <MEE>
F. 192. 389. Product: major envelope protein B #status predicted <NS1>
F. 130. 1006/Product: nonstructural protein NS1 #status predicted <NS2>
F. 130. 1237/Region: nucleotide-binding motif A (P-loop)
F. 1315-1317/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genome polyprotein - hepatitis C virus (strain H)
N'Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructur)
N'Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructur)
Protein NS4s; nonstructural protein NS4b; nonstructural protein NS5
C; Species: hepatitis C virus
A; Note: host Homo sapiens (man)
C; Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
C; Accession: A36814; A41546
R; Inchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
A; Description: Genomic structure of the human prototype strain H of hepatitis C virus: C
A; Accession: A36814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A Note: neither amino acid nor nucleotide sequence is given
C Superfamily: hepatitis C virus genome polyprotein
F 115/Product: capsid protein C #status predicted <CPC>
F 116-191/Product: capsid protein C #status predicted <CPC>
F 116-191/Product: envelope protein E #status predicted <MEE>
F 130-1006/Product: nonstructural protein NS2 #status predicted <NS1>
F 130-1006/Product: nonstructural protein NS2 #status predicted <NS2>
F 1230-1237/Region: nucleotide-binding motif A (P-loop)
F 1312-1317/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2077,22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2240,23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: genomic RNA
A; Residues: 1-3011 <1NC>
A; Residues: 1-3011 <1NC>
A; Cross-references: GB:M67463; NID:g329737; PIDN:AAA45534.1; PID:g329738
B; Inchauspe, G; Zebedee, S; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
Proc. Natl. Acad. Sci. U.S.A. 88, 10292-10296, 1991
A; Title: Genomic structure of the human prototype strain H of hepatitis C virus: compari
A; Reference number: A41546; MUID:92052256
A; Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 45; DB 1; Length 3011; 100.0%; Pred. No. 2.1; ive 0; Mismatches 0; Indels
                                                                              A; Experimental source: isolates E-bl6
                                       A; Cross-references: DDBJ:D10128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 100.
                                                                                                                                                                                                         A; Molecule type: genomic RNA
A; Residues: 1577-1633 <CH2>
A; Residues: 1577-1633 <CHA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 KLVALGINAV 10
                                                                                                                                                                  A;Status: preliminary
                                                                                                                      A; Accession: PQ0404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

us-08-854-825-28.rpr

ő

Gaps

; 0

```
conserved hypothetical protein ydfk - Bacillus subtilis
C;Species: G5-Dec-1997 #sequence_revision 05-Dec-1997 #text_change 20-Jun-2000
C;Accession: A69781
R;Kunst, E: Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Ber C; Bron, S.; Broullet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.;
A.; Ebrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari,
Nature 390, 249-256, 1997
A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Funa, S.; Galizzi, A.; Gal
iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Huslo, M
Koetter, P.; Koningstein, G.; Kroph, S.; Kumano, M.; Kurita, R.; Lapidus, A.; Lapidus, A.; Lapidus, A.; Lapidus, R.; Lapidus, A.; Lapidus, A.; Lapidus, R.; Lapidus, A.; Lapidus, A.; Lapidus, R.; Barko, M.; Sada, K.; Sato, T.; Scanl
A;Authors: Laber, C.; Rocha, E.; Roche, B.; Rosee, M.; Sada, V.; Sato, T.; Scanl
A;Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Seach
A;Authors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.
A;Tille: The complete genome sequence of the Gram-positive bacterium Bacillus subtili
A;Accession: A69781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       probable transcription regulator yfhH [imported] - Salmonella enterica subsp. enteric C; Species: Salmonella enterica subsp. enterica serovar Typhi A;Note: this species has also been called Salmonella typhi C;Date: 09-Nov-2001 #sequence_revision 09-Nov-2001 #text_change 09-Nov-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: GB:299106; GB:AL009126; NID:g2632653; PIDN:CAB12352.1; PID:g26328
A;Experimental source: strain 168
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Status: preliminary; nucleic acid sequence not shown; translation not shown A;Molecule type: \mathsf{DNA}
          C;Date: 22-Oct-1999 #sequence_revision 22-Oct-1999 #text_change 20-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 595;
                                    C; Accession: T29434
S; Parkhill, J; Barrell, B.G; Rajandream, M.A.
S; Parkhill, J; Barrell, B.G; Rajandream, M.A.
A; Reference number: 220619
A; Accession: T29434
A; Status: preliminary; translated from GB/EMBL/DDBJ
A; Molecule type: DNA
A; Residues: 1-595 <PAR>
A; Cross-references: EMBL:AL031155; PIDN:CAA20078.1
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Gene: ydfK
C;Superfamlly: conserved hypothetical protein b2966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 36; DB
Pred. No. 29;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 35;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                              A,Note: SC3A7.15
C,Superfamily: beta-galactosidase b
C,Keywords: glycosidase; hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77.8%;
87.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80.0%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Residues: 1-229 <KUN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
nes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42 VALGINAI 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 VALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43 RLAALGLNAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AB0828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
                                                                                   A; Experimental sources: Explication an individual
R; Honda, M.; Kaneko, S.; Unoura, M.; Kobayashi, K.; Murakami, S.
Arch. Virol. 128, 163-169, 193
A; Title: Sequence analysis of putative structural regions of hepatitis C virus isolated
A; Reference number: A4832; MuID:93119270
A; Reference number: A4832; MuID:93119270
A; Reference number: A4832; MuID:93119270
A; Recession: S33570
A; Residues: 1-547, TY: 549-621, VV, 623-624, 'S', 626-652, 'DL', 655-761, 'T', 763-782 <HOW>
A; Residues: 1-547, TY: 549-621, VV, 623-624, 'S', 626-652, 'DL', 655-761, 'T', 763-782 <HOW>
A; Cross-references: EMBL:X61591
A; Note: this sequence is inconsistent with the nucleotide translation
A; Note: the authors translated the codon AGG for residue 43 as Pro, TGG for residue 320
as Trp, and TrC for residue 771 as Ser
A; Note: sequence extracted from NCBI backbone (NCBIN:121747, NCBIP:121748)
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: APP; glycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein; c; Stperfamily: hepatitis C virus genome polyprotein
C; Keywords: APP; glycoprotein; hydrolase; nucleotide AEBD:
C; Superfamily: any explore protein MS1 *status predicted <NBD:
F; 130-139/Product: nonstructural protein NS1 *status predicted <NBD:
F; 130-130/Product: nonstructural protein NS2 *status predicted <NAD>F; 1312-1317/Region: nucleotide-binding motif B
F; 1316-1319/Region: nucleotide-binding status predicted <NAD>F; 1863-2013/Product: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       submitted to the EMBL Data Library, April 1992
A;Description: A sentitive serodiagnosis of hepatitis C virus infection with two cloned A;Reference number: S21336
A;Accession: S21337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome polyprotein S4 (NS3 region) - hepatitis C virus (fragment)
C;Species: hepatitis C virus
C;Date: 20-Feb-1995 #sequence_revision 19-Apr-1996 #text_change 17-Nov-2000
C;Accession: S21337
R;Sato, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
A;Molecule type: genomic RNA
A;Residues: 1-3010 <HON>
A;Cross-references: EMBL:X61596; NID:g59478; PIDN:CAA43793.1; PID:g59479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: genomic RNA
A; Residues: 1-216 <SAT>
A; Cross-references: EMBL:X65547; NID:q59494; PIDN:CAA46516.1; PID:q59495
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 38; DB 1; Length 3010;
Pred. No. 54;
1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82.2%; Score 37; DB 2; Length 216; 80.0%; Pred. No. 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         beta-galactosidase (EC 3.2.1.23) - Streptomyces coellcolor C;Species: Streptomyces coellcolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 7;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          84.4%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 80.0
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 82.2
Best Local Similarity 80.0
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1406 KLSALGVNAV 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120 KLSALGLNAV 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T29434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

ö

Gaps

; 0

```
Cyncrestion: A42573

Niras Res. 23, 39-53, 1992

Nirus Res. 23, 30-53, 1992

Nirus Res. 24, 300

Nirus Res. 24, 300

Nirus Res. 24, 300

Nirus Res. 24, 300

Nirus Res. 26, 300

Nirus Res. 200

Nirus
               C;Species: hepatitis C virus
C;Date: 30-Jun-1992 #text_change 19-Jan-2001
C;Accession: A39253; PS0086
C;Accession: A39253; PS0086
R;Kato, N.; Hijikata, M.; Ootsuyama, Y.; Nakagawa, M.; Ohkoshi, S.; Sugimura, T.; Shi Proc. Natl. Acad. Sci. U.S.A. 87, 9524-9528, 1990
A;Title: Molecular cloning of the human hepatitis C virus genome from Japanese patien A;Accession: A39253; MUID:91088550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F;1316-1319/Region: DEXH motif
F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1616-1862/Product: nonstructural protein NS4b #status predicted <N4B>
F;1863-2013/Product: nonstructural protein NS4 bstatus predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,325,417,423,430,448,532,556,576,623,645,1213,1255,2041,2077,224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N; Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstruprotein N34a; nonstructural protein N35. C; Species: hepatitis C virus C; Species: hepatitis C virus C; Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 35; DB 1; Lei
Pred. No. 2.2e+02;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genome polyprotein - hepatitis C virus (strain JT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77.8%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 77.8
Best Local Similarity 70.0
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1406 KLTGLGLNAV 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C; Accession: A45573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A. Cross-references: EMBL:M58335; NID:g329770; PIDN:AAA72945.1; PID:g329771
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C virus genome polyprotein; glycoprotein; hydrolase; nonstructura
C. Keywords: ATP; capsid protein c #status predicted <CPC>
F:115.Product: capsid protein C #status predicted <CPC>
F:10-191.Product: envelope protein E #status predicted <MED>
F:192-392.Product: major envelope protein E #status predicted <MED>
F:390-729.Product: nonstructural protein NS2 #status predicted <NS2>
F:1007-1615.Product: nonstructural protein NS2 #status predicted <NS2>
F:1007-1615.Product: nonstructural protein MS2 #status predicted <NS2>
F:1230-1237/Region: nucleotide-binding motif A (P-loop)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,325,417,423,430,448,532,540,556,576,623,645,1213,1255,2041,2077,22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genome polyprotein - hepatitis C virus (strain J)
N;Contains: capsid protein C; envelope protein M; major envelope protein E; nonstructura
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C; Accession: AB0828
R; Parkhill, J.; Dougan, G.; James, K.D.; Thomson, N.R.; Pickard, D.; Wain, J.; Churcher, P.; Connerton, P.; Cronin, A.; Davis, P.; Davies, R.M.; Dowd, L.; White, N.; Farrar, S.; Moule, S.; O'Gora, P.
Nature 413, 848-852, 2001
A.Authors: Parry, C.; Quail, M.; Rutherford, K.; Simmonds, M.; Skelton, J.; Stevens, K.; Altitle: Complete genome sequence of a multiple drug resistant Salmonella enterica serow A.F.Reference number: AB0502; PMID:11677608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu protein NS4s, nonstructural protein NS5 C;Species: hepatitis C virus C virus C;Species: hepatitis C virus C virus C;Species: hepatitis C virus C virus C;Species: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Accession: A38465
R; Takamizawa, A.; Mori, C.; Fuke, I.; Manabe, S.; Murakami, S.; Fujita, J.; Onishi, E.; V, VIrol. 65, 1105-1113, 1991
A; Title: Structure and organization of the hepatitis C virus genome isolated from human A; Reference number: A38465; MUID:91140698
A; Accession: A38465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: GB:AL513382; PIDN:CAD02774.1; PID:g16503784; GSPDB:GN00176 C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 35; DB 1; Length 3010;
Pred. No. 2.2e+02;
0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 35;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genome polyprotein - hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 77.8%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  77.8%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 80.0
المام 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: genomic RNA A; Residues: 1-3010 <TAK>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1406 KLSGLGINAV 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-282 <PAR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene: yfhH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Π
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GNWVCJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
```

ö

Gaps

; 0

```
C;Species: Glycine max (soybean)
C;Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 23-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 345;
                            Length 342;
                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A Status: preliminary; translated from GB/EMBL/DDBJ
A/Rolecule type: mRNA
A/Residuce: 1-345 < CHAD>
A/Residuce: 1-345 < CHAD>
A/Ross-references: EMBL:U66836; NID:g1518156; PID:g1518157
C/Function: recombinase
C/Superfamily: yeast DNA repair protein RAD51
                               5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5;
                            ore 34; DB;
ed. No. 43;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 34; DB Pred. No. 44; 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                             C, Accession: T08838
R; Hadi, M.Z.; Finer, J.J.
submitted to the EMBL Data Library, August 1996
A; Description: RecA like gene from soybean.
A; Reference number: 216485
A; Accession: T08838
                               Score 34;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Search completed: August 23, 2002, 09:56:49 Job time: 139 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75.68;
                            75.6%;
77.8%;
  Query Match
Best Local Similarity 7/...
7: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7; Conservative
                                                                                                                                                                                                                                                                                                      RecA/Rad51/DMC1-like protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ||:| ||||
34 KLIAQGINA 42
                                                                                                                                                            ||:| ||||
33 KLIAQGINA 41
                                                                                                                               1 KLVALGINA 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 KLVALGINA 9
                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                  οy
                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cipecies: Methanobacterium thermoautotrophicum (Strain Del
Cipate: 05-Dec-1997 #sequence_revision 05-Dec-1997 #text_change 29-Sep-1999
Accession: B69192
Rismith, D.R.; Doucette-Stamm, L.A.; Deloughery, C.; Lee, H.; Dubois, J.; Aldredge, T.;
Olu, D.; Spadafora, R.; Vicaire, R.; Wang, Y.; Wierzbowski, J.; Gibson, R.; Jiwani, N.
F. Schuch, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N.
J. Bacteriol. 179, 7135-7155, 1997
A:Title: Complete genome sequence of Methanobacterium thermoautotrophicum Delta H: funct
A:Reference number: A69000; MUID:98037514
A:Refatus: preliminary; nucleic acid sequence not shown; translation not shown
A:Mesidues: 1-124 
A:Residues: 1-124 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Introns: 6/1; 34/2; 64/1; 88/1; 101/1; 121/2; 136/1; 151/3; 172/1; 194/3; 225/3; 248/3 (C;Superfamily: yeast DNA repair protein RAD51 (C;Keywords: nucleotide binding; P-loop)
F;133-140/Region: nucleotide-binding motif A (P-loop)
F;224-229/Region: nucleotide-binding motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                conserved hypothetical protein MTH691 – Methanobacterium thermoautotrophicum (strain Del
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N.Alternate names: recA-like protein
C.Species: Arabidopsis thallana (mouse-ear cress)
C.Species: Arabidopsis thallana (mouse-ear cress)
C.Saccession: JC4092
R.Sato, S.; Hotta, Y.; Tabata, S.
DNA Res. 2, 89-93, 1995
A.Title: Structural analysis of a recA-like gene in the genome of Arabidopsis thallana.
A.Reference number: JC4092; MUD:96093929
A.Molecule type: mRNA
A.Residues: 1-342 <SAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: DDBJ:D45415; NID:g871831; PIDN:BAA08255.1; PID:g871832
C;Comment: This protein plays key roles in genetic recombination by finding homologous
C;Genetics:
                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                        Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 124;
                                                                                                                                                                                                   Score 35; DB 1; Length 301
Pred. No. 2.2e+02;
0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: MTH691
C;Superfamily: conserved hypothetical protein MJ0742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 34; DB 2;
Pred. No. 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DMC1/LIM15 homolog - Arabidopsis thaliana
                                                                                                                                                                                                        77.8%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 75.6%;
Best Local Similarity 77.8%;
Matches 7; Conservative
                                                                                                                                                                                                      Query Match 77.8
Best Local Similarity 80.0
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                   || |||||||
|1406 KLSGLGINAV 1415
                                                                                                                                                                                                                                                                                                      1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 KLVALGINA 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Gene: ArLIM15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Genetics
                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                      δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

ö

Gaps

ö

Indels

3-80-511

Ų.

```
GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

August 23, 2002, 09:55:22 ; Search time 37 Seconds (without alignments) 10.465 Million cell updates/sec Run on:

US-08-854-825-28 45 1 KLVALGINAV 10 Title: Perfect score: Sequence:

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

105224 seqs, 38719550 residues Searched:

Total number of hits satisfying chosen parameters:

105224

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_40:* Database : Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		æ			SUMMARIES		
Result No.	Score	Query Match	Length	DB	ID	Description	
	45	100.0		-		664 h	od
7	45	100.0	3011	Н	POLG_HCVH	ح ح	od
ო	35	77.8	701	Н	HS90_PODAN	8 6	ď
4	35	77.8	3010	-	POLG_HCVBK		ы
S	35	77.8	3010	Н	POLG_HCVJA	ч	bo
9	35	77.8	3010	Н	POLG_HCVJT		od
7	34	75.6	342	Н	DMC1_ARATH	Q39009 arabidopsis	s
œ	34	75.6	345	Н	DMC1_SOYBN		ax
б	34	75.6	3010	~1	POLG_HCVTW		od Od
	33	73.3	310	7	MMUM_ECOLI	-	į,
	32	71.1	194	٦	INA_FELCA		ve
	32	71.1	441	Н	HS82_ASPFU	P40292 aspergillus	ns
	32	71.1	499	7	GLU4_ORYSA		, t
14	32	71.1	499	٦	GLUB_ORYSA		iν
12	32	ij	568	П	TCPQ_YEAST		λc
16	32	71.1		-	HS82_AJECA		es
17	32	71.1		Н	ST11_YEAST		λc
18	31	68.8		٦	Y1F1_VIBCH		0]
19	31	68.8	214	-	LIPB_CYACA	_	υ
20	31	68.8		-	YBF7_YEAST		Уc
21	31	68.8		, ,	YGGG_ECOLI	•	ia
22	31	68.8		-	TRPC_LACCA		7
23	31	68.8		Н	HEM2_HELPJ		te
24	31	68.8		П	SYK3_PASMU		la
25	31	68.8		П	SMTA_ASTBI		ß
56	31	68.8		7	DMC1_LILLO		вu
27	31	68.9		-	VCLB_PEA	P02854 pisum sativ	įν
28	31	68.8		П	MTN5_NOSS7	P35678 nostoc sp.	
59	31	68.8		Н	HS1_HUMAN		en
30	31	68.8		٦	YNW3_YEAST	7	Уc
31	31	68.9	532	Н	COX1_RHOCA		er
32	31	68.8		Н	ISPG_CHLPN	Q9z8h0 chlamydia	a
33	31	68.8		Н	YGL0_YEAST	P53137 saccharomyc	λc

31 68.9 707 1 HS90_CANAL P46598 candida alb 68.9 948 1 PEX6_SCHPO 013764 schizosacch 31 68.9 1214 1 BRF1_HUMAN P55201 homo sapien 66.7 120 1 RET3_CHICK P29762 homo sapien 30 66.7 136 1 RET3_HUMAN P02569 mus musculu 66.7 223 1 AOP2_HUMAN P30041 h antioxida 66.7 223 1 AOP2_HUMAN P3066.7 223 1 AOP2_HUMAN P30524 r antioxida 66.7 223 1 AOP2_HUMAN P30526 mus musculu 66.7 223 1 AOP2_HUMAN P30526 mus musculu 66.7 250 1 YM25_ARCFU C28058 archaeoglob	PRICE TO THE STANDARD, PRIT; 3011 AA. POLG-HCYI STANDARD, PRIT; 3011 AA. POLG-HCYI STANDARD, PRIT; 3011 AA. POLG-HCYI STANDARD, PRIT; 3011 AA. 101-MGC-1992 (Rel. 23, Created) 101-MGC-1992 (Rel. 23, Created) 101-MGC-1992 (Rel. 23, Last sequence update) 102-MGC-1992 (Rel. 23, Last sequence update) 103-MGC-1992 (Rel. 23, Last sequence update) 103-MGC-1992 (Rel. 23, Last sequence update) 104-MGC-1992 (Rel. 23, Last sequence update) 105-MGC-1992 (Rel. 23, Last sequence update) 105-MGC-1992 (Rel. 23, Last sequence update) 106-MGC-1992 (Rel. 23, Last sequence update) 107-MGC-1992 (Rel. 23, Last sequence update) 108-MGC-1992 (Rel. 21, 1992) 108-MGC-1992 (Rel. 21, 1992) 108-MGC-1992 (Rel. 21, 1992) 109-MGC-1992
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	RESULT 1 POLG_HCV1 ID POLG_HCV1

```
CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN ( POTENTIAL).
MAJOR ENVELOPE PROTEIN ( POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease. INIT_MET 1 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65F8C9447FCE5AF9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATP (POTENTIAL)
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
InterPro; IPR001490; HCV_NS4b.
InterPro; IPR002868; HCV_NS5a.
InterPro; IPR002166; HCV_RGRP.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                Frank Pro1543 HCV capsid 1. Pfam; Pro1542; HCV capsid 1. Pfam; Pro1542; HCV capsid 1. Pfam; Pro1559; HCV capsid 1. Pfam; Pro1560; HCV NS1; 1. Pfam; Pro1006; HCV NS3; 1. Pfam; Pro1006; HCV NS3; 1. Pfam; Pro10001; HCV NS4a; 1. Pfam; Pro1001; HCV NS4b; 1. Pfam; Pro1566; HCV NS5a; 1. Pro1560; HCV NS5a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          327197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
       DOR WELL STATE STA
```

. 0 Gaps ö 100.0%; Score 45; DB 1; Length 3011; 100.0%; Pred. No. 0.94; 0; Indels Mismatches .; 0 Conservative Query Match Best Local Similarity 10; Matches

1406 KLVALGINAV 1415 1 KLVALGINAV 10 g ö

RESULT

PIR; A36814; GNWVCH. PDB; 1HEI; Z5-NOV-98 PDB; 1A1V; 16-FEB-99. MEROPS; S29, 001; -.

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMBL outstation the European Bioinformatics Institute. There are no instrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.igb-sib.ch/announce/or send an email to license@isb-sib.ch). 01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2010 (Nal): Protein P7: Nonstructural protein Rec 3.4.22.-): Protease/helicase NS3 (P70) (Hepacivirin)
16-OCT-2010 (Nal): Nonstructural protein NS4A (P4): Nonstructural protein NS4B (P27): Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P66) (P70) (RM-4directed RNA polymerase) (EC 2.7.7.48)].
16-OCT-2010 (Rel. 40): Nonstructural protein NS5A (P66); Nonstruct C.I. FUNCTION.

C.I. FUNCTION.

C.I. FUNCTION.

C.I. FUNCTION.

C.I. FUNCTION.

C.I. FUNCTION.

C.I. CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.

C.I. SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROPEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: E1 AND E2. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.

C.I. PTM: THE STRCTURAL PROTEINS C, E1 AND E2 ARE PRODUCED BY PROTEINTING PROCESSING BY THE HOST SIGNAL PEPTIDASE FAMILY C18.

C.I. SIMILARITY: THE NS2 PROTEASE BELONGS TO PEPTIDASE FAMILY C18.

C.I. SIMILARITY: THE NS3 PROTEASE BELONGS TO PEPTIDASE FAMILY S29. X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657.
MEDLINE=97331322; PubMed=5187654;
Yao N., Hesson T., Cable M., Hoop Z., Kwong A.D., Le H.V., Weber P.C.;
"Structure of the hepatitis C virus RNA helicase domains";
Nat. Struct. Biol. 4:463-467(1997). MEDLINE-98154321; PubMed-9493270; Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A., Murcko M.A., Lin C., Caron P.R., "Hepatitis C virus NS3 RNA helicase domain with a bound oligonuclectide: the crystal structure provides insights into the mode Structure 6:89-100(1998).

-!- FUNCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.

-!- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF NS3-NS4A, NS4A-NS4B, NS4B-NS5A AND NS5A-NS5B.

-!- FUNCTION: NS4A FORMS A COMPLEX WITH NS3 AND IS ESSENTIAL FOR THE ACTIVATION OF NS3. in the viral "Genomic structure of the human prototype strain H of hepatitis C virus: comparison with American and Japanese isolates."; Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991). MEDLINE=92052256; PubMed=1658800; Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasofff M., X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657. 3011 AA EMBL; M67463; AAA45534.1; -. STANDARD; SEQUENCE FROM N.A. NCBI_TaxID=11108; of unwinding. Prince A.M.; Hepacivirus

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                 Loubradou G., Begueret J., Turcq B.;
"A mutation in an H890 gene affects the sexual cycle and suppresses vegetative incompatibility in the fungus Podospora anserina.";
Genetics 147:581-588(1997).
-!- FUNCTION: MOLECULAR CHAPERONE. HAS ATPASE ACTIVITY
                                                                                                                                                                                                                                                   Eukaryota, Fungi, Ascomycota, Pezizomycotina, Sordariomycetes,
Sordariales, Lasiosphaeriaceae, Podospora.
NCBL_TaxID=5145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (BY SIMILARITY).
-!- SIMILARITY: BELONGS TO THE HEAT SHOCK PROTEIN 90 FAMILY.
                                                                                                  15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
Heat shock protein 90 homolog (Suppressor of vegetative incompatibility MOD-E).
                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=97476309; PubMed=9335595;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR003594; HATPase_c.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PR00775; HEATSHOCK90.
SMART; SM00387; HATPASe_c; 1.
PROSITE; PS00298; HSP90; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; U81165; AAB97626.1; -. HSSP; P07900; 1YER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF02518; HATPase_c; 1. Pfam; PF00183; HSP90; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chaperone; ATP-binding SEQUENCE 701 AA; 79:
                                                                                                                                                                                                                                   Podospora anserina.
                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                             HS90_PODAN
043109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro
                 RESULT 3
HS90_PODAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLG_HCVBK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Olyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   772CBB29CCD94753 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NONSTRUCTURAL PROTEIN NS4A.
NONSTRUCTURAL PROTEIN NS4B.
NONSTRUCTURAL PROTEIN NS5A.
NONSTRUCTURAL PROTEIN NS5B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NONSTRUCTURAL PROTEIN NS2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENVELOPE GLYCOPROTEIN E1. ENVELOPE GLYCOPROTEIN E2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED GECNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROTEASE/HELICASE NS3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROTEIN P7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DECH BOX.
          InterPro; IPR002531, HCV_NS1.
InterPro; IPR002518; HCV_NS1.
InterPro; IPR0004109; HCV_NS3.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001409; HCV_NS4b.
InterPro; IPR001268; HCV_NS5a.
InterPro; IPR002265; HCV_RS5a.
InterPro; IPR002525; HCV_Capsid.
InterPro; IPR002525; HCV_Capsid.
InterPro; IPR002529; HCV_Capsid.
InterPro; IPR002519; HCV_Care.
InterPro; IPR001550; Helicase_C.
                                                                                                                                                                                                                                          France Project 1 (1978) 1. Project 2 (1978) 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   327142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SM00492; HELICC3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4448
476
476
532
532
550
556
576
623
645
3011 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3D-structure.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
CHAIN
CHAIN
CHAIN
```

```
ö
                                                                                                                                                                                                                                                              01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 24), Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (N81); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P66) (P70) (RM-directed RNA polymerase) (EC 2.7.7.48)].
NS5B (P66) (P70) (RM-directed RNA polymerase) (EC 2.7.7.48)].
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                            Gaps
                                                            ;
0
                     Length 701;
                                                            0; Indels
                   Score 35; DB 1;
Pred. No. 23;
                                                                                                                                                                                                                                 PRT; 3010 AA.
                                                          Mismatches
                   77.8%;
Ouery Match
Best Local Similarity 87.5
اجت 7; Conservative
                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                   662 KLVALGLN 669
                                                                                               1 KLVALGIN 8
                                                                                                                                                                                                                               POLG_HCVBK
P26663;
```

ö

Gaps

; 0

DB 1; Length 3011; 0; Indels

100.0%; Score 45; DB 1; ilarity 100.0%; Pred. No. 0.94; Conservative 0; Mismatches

Similarity

Query Match Best Local Simi Matches 10;

1 KLVALGINAV 10

79322 MW; E98A6A541406AACD CRC64;

IPR001404; HSP90.

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            **RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.

**A FAM TO THE SHEED STANDARD STAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOVE R.A., Parge H.E., Wickersham J.A., Hostomsky Z., Habuka N., Moomaw E.W., Adachi T., Hostomska Z.; "The crystal structure of hepatitis C virus NS3 proteinase reveals a trypsin-like fold and a structural zinc binding site."; Cell 87:331-342(1996).
                                                                                                                                 Takamizawa A., Mori C., Fuke I., Manabe S., Murakami S., Fujita J., Onishi E., Andoh T., Yoshida I., Okayama H.; "Structure and organization of the hepatitis C virus genome isolated
                                                                                                                                                                                                                                                                                           SEQUENCE OF 1487-1500.

MEDLINE-96235224; PubMed-8647104;

BOTOWSKI P., Helland M., Oehlmann K., Becker B., Korneteky L.;

Non-structural protein 3 of hepatitis C virus inhibits

phosphorylation mediated by cAMP-dependent protein kinase.";

Eur. J. Biochem. 237:611-618(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS) OF 1027-1215.
MEDLINE-97015088; PubMed-8861916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | IPR002531; HCV_NS1.
| IPR002531; HCV_NS2.
| IPR0004109; HCV_NS3.
| IPR001490; HCV_NS4.
| IPR001490; HCV_NS4.
| IPR002868; HCV_NS5a.
| IPR002522; HCV_CAPS6.
| IPR002522; HCV_CAPS6.
| IPR002521; HCV_CAPS6.
| IPR002519; HCV_CAPS6.
                                                                                 SEQUENCE FROM N.A.
MEDLINE=91140698; Pubmed=1847440;
                                                                                                                                                                                                                     from human carriers.";
J. Virol. 65:1105-1113(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M58335; AAA72945.1; -. PIR; A38465; GNWVTC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1A10; 25-MAR-98.
1JXP; 14-JAN-98.
1NS3; 08-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001410;
InterPro; IPR002531;
                            NCBI_TaxID-11105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam;
```

```
ó
                                                                                                                                                                                                                                                                                                         CAPSID PROTEIN ( POTEWTIAL).
MAJOR ENVELODE PROTEIN E (POTEWTIAL).
MAJOR ENVELODE PROTEIN E (POTEWTIAL).
NONSTRUCTURAL PROTEIN NS1/#E2 (POTEWTIAL).
PROTEASE/HELICASE NS3 (POTEWTIAL).
NONSTRUCTURAL PROTEIN NS4% (POTEWTIAL).
NONSTRUCTURAL PROTEIN NS4% (POTEWTIAL).
NONSTRUCTURAL PROTEIN NS4% (POTEWTIAL).
RNA-DIRECTED RNA POLYMERASE (POTEWTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
                                                                                                                                                                                                   Polyprotein, Glycoprotein, Transferase, RNA-directed RNA polymerase, Core protein, Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane, Nonstructural protein; Hydrolase, Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (PQTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (PÔTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77.8%; Score 35; DB 1; Length 3010;
80.0%; Pred. No. 91;
                                                                                                                                                                                                                                                                        REMOVED FROM CAPSID PROTEIN CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F8422D5ECCFDFD9C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (
N-LINKED (
N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (
N-LINKED (
N-LINKED (
N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                               Pfam; PF01538; HCV_NS2; 1.
Pfam; PF01907; HCV_NS3; 1.
Pfam; PF01006; HCV_NS49; 1.
Pfam; PF01506; HCV_NS49; 1.
Pfam; PF01506; HCV_RG4P; 1.
Pfam; PF00998; HCV_RGRP; 1.
Pfam; PF00271; helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             327189
                 HCV_env; 1.
HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11107
11165
11237
1319
1319
2309
2309
4417
4417
4423
540
556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                645
2041
2077
                                                                                                                                                                                                                                                                                                              115
191
383
729
1006
11615
1862
2013
3010
369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2240
2529
2788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1406 KLSGLGINAV 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 KLVALGINAV 10
           PF01539; H
PF01560; E
PF01538; E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  645
2041
2077
2240
2529
2788
3010
                                                                                                                                                                                                                                                           D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POLG_HCVJA
ID POLG_HCVJA
AC P26662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                        INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
               Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
OORREAD OORREA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AC
DT
DT
DE
DE
```

```
fanaka T., Kato N., Nakagawa M., Ootsuyama Y., Cho M.J.,
 SMART; SM00492; HELICC3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLG_HCVJT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
          (EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RRA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate Japanese) (HCV).
                                                                                                                                                                                                                                                                                                               NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.
LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C. AND MRNA.
                                                              Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepscivirus.
                                                                                                                                                                                                                      MEDLINE-91192160; PubMed=1849488;
MEDLINE-91192160; PubMed=1849488;
Kato N., Hijikata M., Nakagawa M., Ootsuyama Y., Muraiso K.,
Ohkoshi S., Shimotohno K.;
"Molecular structure of the Japanese hepatitis C viral genome.";
FEBS Lett. 280:325-328(1991).
-i- FUNCTION: THE SMALL PROPEINS NS2A, NS2B, NS4A AND NS4B ARE
HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-PERLATED FUNCTION.
(GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
                                                                                                                                                                       "Molecular cloning of the human hepatitis C virus genome from Japanese patients with non-A, non-B hepatitis."; Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                        SEQUENCE FROM N.A.
MEDLINE-91088550; Pubmed-2175903;
Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi
Sugimura T., Shimotohno K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002868; HCV_NS5a.
InterPro; IPR002166; HCV_RdRP.
InterPro; IPR002522; HCV_capsid.
InterPro; IPR002511; HCV_core.
InterPro; IPR002519; HCV_env.
InterPro; IPR001650; Hellicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCV_NS2.
HCV_NS3.
HCV_NS4a.
HCV_NS5a.
HCV_NS5a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1. Pfam; PF01539; HCV_env; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; D90208; BAA14233.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HCV_NS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00271; helicase_C; 1
ProDom; PD186062; HCV_NS1; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV_NS5a; 1
HCV_RdRP; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_NS4b; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV_NS4a;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HCV_NS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR000745;
InterPro; IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PIR; A39253; GNWVCJ.
HSSP; P26663; 1JXP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEROPS; S29.001; -.
                                                                                               NCBI_TaxID=11116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PF01539; 1
PF01560; 1
PF01538; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF01506;
PF00998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF01006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PF01001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PF02907;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
(GP68)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fam;
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN C (POTENTIAL).
MAJOR ENVELOPE PROTEIN C (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; APP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

I 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                       SIMILARITY)
                                                                                                                                                                                                                    SIMILARITY)
SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL)
                                                                                                                                                                                                                                                                                       POTENTIAL)
                                                                                                                                                                                                                                                                                                    ( POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                          POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                       (BY
(BY
(BY
                                                        CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                        POTENTIAL.
CHARGE RELAY SYSTEM (
CHARGE RELAY SYSTEM (
CHARGE RELAY SYSTEM (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA993794F46DB185
                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                 GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hepatitis C virus (isolate HC-JT) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 35;
                                                                                                                                                                                                                                                                                    N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                           DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.
                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE=92295714; PubMed=1318627;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77.8%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    327017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              || ||:|||
KLTGLGLNAV 1415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best_Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=31642;
                                                                                                                                                                                                                                1165
1230
1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POLG_HCVJT
                                                                                                                                                                                                                  ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                       ACT_SITE
                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                          PRANSMEM
                                                                                                            CHAIN
                                                                                                                                                                CHAIN
                                                                                                                                     CHAIN
                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
```

9

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAPSID PROTEIN ( POTENTIAL).
MAJRIX PROTEIN (POTENTIAL).
MAJOR ENVELODE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
                                                                Nakazawa T., Hijikata M., Ishimura Y., Shimotohno K.; "Molecular cloning of hepatitis C virus genome from a single Japanese carrier: sequence variation within the same individual and among
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease. INIT_MET 1 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                 -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY $29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SYSTEM (BY SYSTEM SY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
CHARGE RELAY S
CHARGE RELAY S
CHARGE RELAY S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | IPR002531; HCV_NS1.
| IPR002518; HCV_NS2.
| IPR0004169; HCV_NS3.
| IPR001490; HCV_NS48.
| IPR001490; HCV_NS48.
| IPR00266; HCV_NS58.
| IPR002522; HCV_CADF.
| IPR002522; HCV_CADF.
| IPR002521; HCV_COPE.
| IPR002519; HCV_ENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF01006; HCV_NS4a; 1.
Pfam; PF01001; HCV_NS4b; 1.
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00998; HCV_RGRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001650; Helicase-
Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
Pfam; PF01539; HCV_cnv; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; D11168; BAA01943.1; -. PIR; A45573; A45573. HSSP; P26663; JJYP. MEROPS; S29.001; -. MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR001410; DEAD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF01560; HCV_NS1; 1
Pfam; PF01538; HCV_NS2; 1
Pfam; PF02907; HCV_NS3; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMART; SM00492; HELICC3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          729
1006
1615
1862
2013
3010
369
1083
1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002531;
InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1616
1863
2014
347
1083
1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro;
InterPro;
InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACT_SITE
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ib-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=96093929; PubMed=7584052;
Sato S., Hotta Y., Tabata S.;
"Structural analysis of a recA-like gene in the genome of Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana (Mouse-ear cress).
Bukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales, Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                  (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                            (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                    (POTENTIAL)
                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                      94A1C77435D642BB CRC64;
                                                                                                        (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                     (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1997 (Rel. 35, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
Meiotic recombination protein DMC1 homolog.
                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                  (GECNAC
   (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              342 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 35;
Pred. No. 9
                                  N-LINKED
N-L
                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequ
01-NOV-1997 (Rel. 35, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                       77.8%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                        326573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P03017; 2REB.
InterPro; IPR001553; RecA.
PROSITE; PS50162; RECA_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; D45415; BAA08255.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
1237
1319
1966
234
234
250
305
4423
4430
4430
540
556
623
623
2047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1406 KLSGLGINAV 1415
                                                                                                                                                                                                                                                                                                                                                                                                          AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                         623
645
2041
2077
2240
2529
2788
                                                                                                                                                                                                                                                                                                                                                                                                      3010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DMC1_ARATH
Q39009;
                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                  CARBOHYD
CARBOHYD
                                                                                                                                                                                                                      CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                               CARBOHYD
                                    CARBOHYD
                                                                                          CARBOHYD
                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DMC1_ARATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIM15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
 å
```

```
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
                                                                                                                                                                                                                                                                                                                                                                                                              MEROPS;
    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                          15-JUL.1998 (Rel. 36, Created)
15-JUL.1998 (Rel. 36, Last sequence update)
15-JUL.1998 (Rel. 36, Last annotation update)
15-JUL.1998 (Rel. 36, Last annotation update)
Melotic recombination protein DMC1 homolog.
Glycine max (Soybean).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae; Glycine.
                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POLG_HCVTW STANDARD; PRT; 3010 AA.
P29846;
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope 9lycoprotein El (GP32) (GP35); Envelope 9lycoprotein E2
                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75.6%; Score 34; DB 1; Length 345; 77.8%; Pred. No. 19;
                                                             Length 342;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1; Indels
                      POTENTIAL).
BAFOD3D7F7C6750B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL).
685CB696F923BAB6 CRC64;
PS50163; RECA_3; 1.
Cell cycle; ATP-binding; Nuclear protein.
133 140 ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS50162; RECA_2; 1.
PROSITE; PS50163; RECA_3; 1.
Melosis; Cell cycle; ATP-binding; Nuclear protein.
NP_BIND 134 141 ATP (POTENTIAL).
                                                           Score 34; DB
Pred. No. 19;
                                                                                 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                          or send an email to license@isb-sib.ch).
                              37339 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37475 MW;
                                                          75.6%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; U66836; AAB07025.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001553; RecA.
                                                                    Best Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best_Local Similarity 77.8
Matches 7; Conservative
                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   345 AA;
                              342 AA;
                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ||:| ||||
34 KLIAQGINA 42
                                                                                                                       33 KLIAQGINA 41
                                                                                                    1 KLVALGINA 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 KLVALGINA 9
                                                                                                                                                                        DMC1_SOYBN
Q96449;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NP_BIND
SEQUENCE
 PROSITE;
            Meiosis;
                              SEQUENCE
                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                      BIND
                                                                                                                                                      RESULT 8
DMC1_SOYBN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 9
POLG_HCVTW
                      ď
   S F S
                                                                                                                       g
                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BE BE BE BE
                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-92230206; PubMed-1314449;

MEDLINE-92230206; PubMed-1314449;

MEDLINE-92230206; PubMed-1314449;

A Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.;

A Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.;

The Taiwanese hepatitis C virus genome: sequence determination and mapping the S' termini of viral genomic and antigenomic RNA.",

RL Virology 188:102-113(192).

C - FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE TAINDORDOHOSIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

CC - CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.

C - SUBMYT: THE VIRION OF THIS VIRIOS IS A NUCLEOCARSID COVERED BY A LIPOPROTEIN ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF COMPLEX 
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin) (EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)]. Hepatitis C virus (isolate Taiwan) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CELLULAR AMINOPEPTIDASE.
CORE PROTEIN (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M84754; -; NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001490; HCV_NS4b.
InterPro; IPR002868; HCV_NS5a.
InterPro; IPR002166; HCV_RGRP.
InterPro; IPR002522; HCV_capsid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
InterPro; IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01543; HCV_core; 1.
Pfam; PF01543; HCV_env; 1.
Pfam; PF01550; HCV_NS1; 1.
Pfam; PF01550; HCV_NS2; 1.
Pfam; PF02907; HCV_NS3; 1.
Pfam; PF02907; HCV_NS3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HCV_NS2.
HCV_NS3.
HCV_NS4a.
HCV_NS4b.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_NS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115
191
383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002531;
InterPro; IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; A40244; GNWVTW.
HSSP; P26663; LJXP.
                                                                                                                                                                                                                                                                                                               NCBI_TaxID=31645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEROPS; S29.001;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              116
192
```

us-08-854-825-28.rsp

```
;
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
NONSTRUCTURAE PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                  RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAIN=KIZ / MG1655;
STRAIN=KIZ / MG1655;
STRAIN=FIZ / MG1655;
Pubmed-9278503;
Blattner F.R., Plunkett G. III, Bloch C.A., Perna N.T., Burland V., Riley M., Collado-Vides J., Glasner J.D., Rode C.K., Mayhew G.F., Gregor J., Davis N.W., Kirkpatrick H.A., Goeden M.A., Rose D.J., Gang B., Shao Y.,
                                                                       SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN-K12 / W3110;
Takemoto K., Mori H., Murayama N., Kataoka K., Yano M., Itoh T.,
                                                                                                                                                                                      (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                    (POTENTIAL)
(POTENTIAL)
                                                                                                                                                        (POTENTIAL)
                                                                                                                                               POTENTIAL)
                                                                                                                                                                            POTENTIAL)
                                                                                                                                                                                                                                                   POTENTIAL)
                                                                                                                                                                                                                                                             POTENTIAL)
                                                                                                                                                                                                                                                                       POTENTIAL)
                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                            POTENTIAL)
                                                                                                                                                                                                                                                                                                    POTENTIAL)
                                                                                                                                                                                                                                                                                                                POTENTIAL)
                                                                                                                                                                                                                                                                                                                          POTENTIAL)
                                                                                                                                                                                                                                                                                                                                     POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                   POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                            Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "The complete genome sequence of Escherichia coli K-12. Science 277:1453-1474(1997).
                                                                       CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ul-NUV-1997 (Rel. 35, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Homocysteine S-methyltransferase (EC 2.1.1.10) (S-methylmethionine:homocysteine methyltransferase).
                                                                                                                                                                                                                                                                                                                                              AAD267D55CDFE215
                                                                                                                                                                                                                                                                                                                                                                            Score 34; DB 1; | Pred. No. 1.4e+02;
                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                          N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                         (GLCNAC.
                                                                                                                                                                                                                                                    (GLCNAC.
                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                              N-LINKED (GLCNAC
                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                (GLCNAC
                                                                                                     ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                  (GLCNAC
                                                                                                                                                                                                 (GLCNAC
                                                                                                                                                        (GLCNAC
                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          310 AA
                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                           N-LINKED
                                                                                                                                                       N-LINKED (
                                                                                                                                                                                                                                                                                                    N-LINKED (
                                                             POTENTIAL
                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MMUM_ECOLI STANDARD; 047690; P77226; 01-NOV-1997 (Rel. 35, Created) 01-NOV-1997 (Rel. 35, Last sequile-ocr-2001 (Rel. 40, Last annotation)
                                                                                                                                                                                                                                                                                                                                                                            75.68;
80.08;
                                                                                                                                                                                                                                                                                                                                              327047
                                                                                                                                                                                                                                                                                                                                                                                                8; Conservative
                     1615
1862
2013
3010
369
11083
11165
11165
12137
1313
205
233
233
305
                                                                                                                                                                                                                                                                                                    2077
2240
2529
2788
                                                                                                                                                                                                                                                                                                                                                                                                                              1406 KLSALGIHAV 1415
                                                                                                                                                                                                                                                                                                                                              AA;
                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                   1 KLVAĽGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Escherichia coli
                                                                                                                                                                                                                                                                                645
                                                              347
1083
1107
1165
1230
1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia
                                         CHAIN
CHAIN
TRANSMEM
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
                                                                                                                           CARBOHYD
                                                                                                                                   CARBOHYD
                                                                                                                                                        CARBOHYD
                                                                                                                                                                  CARBOHYD
                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MESULT 10
 CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                Matches
 à
                                                                                                                                                                                                                                                                                                                                                                                                                                     q
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modifited and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó
Yamamoto Y., Inokuchi H., Miki T., Hatada E., Fukuda R., Ichihara S., Mizuno T., Makino K., Nakata A., Yura T., Sampei G., Mizobuchi K.; Systematic sequencing of the Escherichia coli genome: analysis of the 4.0 - 6.0 min (189,987 - 281,416bp) region."; Submitted (FEB-1996) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                               O.R
                                                                                                             Ξ,
                                                                                                          Schramm S., Duncan M., Allen E., Araujo R., Aparicio A., Chung E. Davis K., Federspiel N., Hyman R., Kalman S., Komp C., Kurdi O., Lashkari D., Lew H., Lin D., Namath A., Oefner P., Roberts D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SELENOHOMOCYGTEINE AND LESS EFFICIENTLY SELENOCYSTEINE.
-!- CATALYTIC ACTIVITY: S-adenosyl-L-methionine + L-homocysteine adenosyl-L-nomocysteine + L-methionine.
-!- COFACTOR: ZINC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                             J. Biol. Chem. 274:5407-5414(1999).
-i- FUNCTION: CATALYZES METHYL TRANSFER FROM S-METHYLMETHIONINE ADENOSYLMETHIONINE (LESS EFFICIENT) TO HOMOCYSTEINE,
                                                                                                                                                                                                                                                                                                 CHARACTERIZATION.
STRAIN=K12 / JM109;
MEDLINE=99150319; PubMed=10026151;
Neuhierl B., Thanbichler M., Lottspeich F., Boeck A.;
"A family of S-methylmethionine-dependent thiol/selenol methyltransferases. Role in selenium tolerance and evolutionary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR003726; S_methyl_trans.
Pfam; PF02574; S-methyl_trans; 1.
Methionine biosynthesis; Transferase; Methyltransferase; Zinc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 33; DB 1; Length 310;
Pred, No. 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Indels
                                                                                                                                                                          Submitted (SEP-1996) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRC64;
                                                                                                                                                                                                                      MEDLINE-99102233; PubMed-9882684;
Thanblichler M., Neuhitarl B., Boeck A.;
"S.methylmethionine metabolism in Escherichia coli.";
J. Bacteriol. 181:662-665(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 -> R (IN REF. 2).

5 -> T (IN REF. 2).

5 -> T (IN REF. 2).

7 -> V (IN REF. 2).

8381CFF475E5FB7A C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZINC (POTENTIAL).
ZINC (POTENTIAL).
ZINC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
R (IN REF. 2
T (IN REF. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AE000134; AAC73364.1; -.
EMBL; D83536; BAA77929.1; ALT_INIT.
EMBL; U70214; AAB08682.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73.3%; 60.0%; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2229
295
296
123
130
142
159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EcoGene; EG13343; mmuM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ::|||||| :
221 QVVALGINCI 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Complete proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      159
310 A
                                                                                                                                                           Davis R.W.;
                                                                                                                                                                                                                                                                                                                                                                                                relation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INA_FELCA
ID INA_FELCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                         FUNCTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

σ

```
12) (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLU4_ORYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLU4_ORYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ·;
                                                                                                                                                                                                                                                                                                                                                                  Ueda Y., Sakurai T., Yanai A.;
"Homogeneous production of feline interferon in silkworm by replacing single amino acid code in signal peptide region in recombinant baculovirus and characterization of the product.";
J. Vet. Med. Sci. 55:251-258(1993).
-: FUNCTION: PRODUCED BY MACROPHAGES, IEN-ALPHA HAVE ANTIVIRAL ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41
                                                                                                                                                                                                                         MEDLINE-92323151; PubMed-1377975; Nakamura N., SudO T., Matsuda S., Yanai A.; Molecular cloning of feline interferon cDNA by direct expression."; Biosci. Biotechnol. Biochem. 56:211-214(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1995 (Rel. 31, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
16-CCT-2001 (Rel. 40, Last annotation update)
Heat shock protein HSPI (65 KDa IGE-binding protein) (Allergen Asp
                                                                                                              elis sirvisilis catus (cat).
Eukaryota; Metazoa; contrata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           71.1%; Score 32; DB 1; Length 194; 77.8%; Pred. No. 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC. . .) (Post state of the control o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY.
INTERFERON ALPHA.
BY SIMILARITY.
BY SIMILARITY.
                 01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         441 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Mismatches
                                                                                   Interferon alpha precursor (IFN-alpha).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INTERFERON_A_B_D; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Interferon_abd; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR000471; Interferon_abd.
Pfam; PF00143; interferon; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 1-193 FROM N.A. MEDLINE-93291263; Pubmed=7685640;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00266; INTERFERONAB
ProDom; PD000550; Interferon-
SMART; SM00076; IFabd; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21
21892 MW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL, S62636; AAB27160.2; -. PIR, JS0664; JS0664.
HSSP; P01563; 2HIE.
                                                                                                      Felis silvestris catus (Cat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Antiviral;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24
24
52
102
21
194 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00252;
Cytokine; Antivira
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
nes 7; Conserv
                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 LVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11 LVALGCNSV 19
                                                                                                                                                                  NCBI_TaxID=9685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HS82_ASPFU
P40292;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 12
HS82_ASPFU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMED outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                   Kumar A., Reddy L.V., Sochanik A., Kurup V.P.;
"Isolation and characterization of a recombinant heat shock protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=90067963; PubMed=2587279;
MEDLINE=90067963; PubMed=2587279;
MeD L., Huang J.K., Johnson B.H., Reeck G.R.;
"Nucleoride sequence of a cDNA that encodes a rice glutelin.";
Nucleic Acids Res. 17:3490-9490 (1989).
-:- FUNCTION: THIS IS A SEED STORAGE PROTEIN.
-:- SUBUNIT: HEXAMER; EACH SUBUNIT IS COMPOSED OF AN ACIDIC AND A BASIC CHAIN DERIVED FROM A SINGLE PRECURSOR AND LINKED BY A DISULFIDE BOND.
-:- SIMILARITY: BELONGS TO THE 11S SEED STORAGE PROTEIN (GLOBULINS)
Aspergillus fumigatus (Sartorya fumigata).
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Eurotiales; Trichocomaceae; mitosporic Trichocomaceae; Aspergillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glutelin precursor.
Oryza sativa (Rice).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 441;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                   Kurup V.P., Banerjee B.;
Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  of Aspergillus fumigatus.";
J. Allergy Clin. Immunol. 91:1024-1030(1993).
-!- FUNCTION: MOLECULAR CHAPERONE, HAS ATPASE ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE 441 AA; 50523 MW; 3726AFF5CCBF83A4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 32; DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JAN-1990 (Rel. 13, Last sequence update) 01-NOV-1990 (Rel. 16, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chaperone; ATP-binding; Heat shock; Allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   499 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No.
                                                                                                                                                                                                                                                                                                                          STRAIN=ATCC 42202 / AF-102;
MEDLINE=93260199; Pubmed=8491935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS00298; HSP90; PARTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-JAN-1990 (Rel. 13, Created)
                                                                                                                                                                                                                                                                                             SEQUENCE OF 165-284 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 71.1%;
75.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; U92465; AAB51544.1; -.
InterPro; IPR001404; HSP90.
Pfam; PF00183; HSP90; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                402 KLVSLGLN 409
                                                                                                   NCBI_TaxID=5085;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=4530;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 KLVALGIN 8
```

us-08-854-825-28.rsp

```
PIR; S17762; S17762.
                                                                                                                                                                                        DISULFID
                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCPQ_YEAST
δ
                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11D
DD41DD41S
DD41DD41S
DD41S

                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modifiad and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation—the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-CV. MANGETSUMOCHI: TISSUE-Seed;
MEDILINE-92003697; Bubbed-1680490;
Takaiwa F., Oono K., Wing D., Kato A.;
"Sequence of three members and expression of a new major subfamily of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEVELOPMENTAL STAGE: IT BEGINS TO ACCUMULATE 6 DAYS AFTER FLOWERING AND REACHES A MAXIMUM LEVEL AT 14 DAYS.
SIMILARITY: BELONGS TO THE 11S SEED STORAGE PROTEIN (GLOBULINS) FAMILY. GLOTELIN GENE SUBFAMILY B.
                                                                                                                                                                                                                                                                                                                                                                                                         BASIC CHAIN.
INTERCHAIN (ACIDIC-BASIC) (POTENTIAL).
38EA5A7398EEAA15 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae,
Ehrhartoideae, Oryzeae, Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                                                                                                                                                                                                                                     InterPro; IPR000459; Seedstore_11s.
Pfam: PF00190; Seedstore_11s; 1.
PRINTS; PR00439; 11SGLOBULIN.
PROSTITE; PS00305; 11S_SEED_STORAGE; 1.
Seed storage protein; Signal; Multigene family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
01-JUN-1994 (Rel. 29, Last annotation update)
Glutelin type-B 1 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71.1%; Scor.
100.0%; Pred. No. co.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             499 AA
                                                                                                                                                                                                                                                                                                                                                                                          ACIDIC CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      499 AA; 56564 MW;
                                                                                                                                                                                                               EMBL; X15833; CAA33838.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; X54314; CAA38212.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                       PIR; S07640; S07640.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sativa (Rice).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISULFIDE BOND.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1111111
238 ALGINAV 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=4530;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 ALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLUB_ORYSA
Q02898;
                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                   SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLUB-1
                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 14
GLUB_ORYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>-</u>-
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TO Van D., Perea J., Jacq C.;
Submitted (SEP-1995) to the EMBL/GenBank/DDBJ databases.

Submitted (SEP-1995) to the EMBL/GenBank/DDBJ databases.

TP HYDROLISIS. KNOWN TO PLAY A ROLE, IN VITRO, IN THE FOLDING OF ACTIN AND TUBULIN. IN YEAST MAY PLAY A ROLE IN MITOTIC SPINDLE FORMATION (BY SIMILARITY).

SUBUNIT: HETERO-OLIGOMERIC COMPLEX OF ABOUT 850 TO 900 kDa THAT FORMS TWO STACKED RINGS, 12 TO 16 NM IN DIAMFERR (BY SIMILARITY).

SUBCELLULAR LOCATION: CYCOPIASMIC (BY SIMILARITY).

SUBCELLULAR LOCATION: CYCOPIASMIC (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                       BASIC CHAIN (BY SIMILARITY).
INTERCHAIN (ACIDIC-BASIC) (POTENTIAL).
67582414D75166AB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
0
                                                                                                                                                                                                                                                                                                                                                                                                        .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-OCT-1996 (Rel. 34, Last annotation update)
T-complex protein 1, theta subunit (TCP-1-theta) (CCT-theta).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          71.1%; Score 32; DB 1; Length 568; 50.0%; Pred. No. 76; 1. No. 76; 1. No. 76; 1. No. 76; Nismatches 0; Indels
                                                                                                                                                                         ACIDIC CHAIN (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                             DB 1; Length 499,
67;
                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATP-binding; Multigene family.
568 AA; 61662 MW; 90817CA3151A52FD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomycetales; Saccharomycetaceae; Saccharomyces
NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                        ;
InterFro; IPR000455; seedstore_11s.
Pfam; PF00190; Seedstore_11s; 1.
PRINTS; PR00439; 11SGLOBULIN.
PROSITE; PS00305; 11S_SEED_STORAGE; 1.
Seed storage protein; Signal; Multigene family.
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           568 AA.
                                                                                                                                                                                                                                                                                                                                                71.1%; Score 32; DB 100.0%; Pred. No. 67; ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCT8 OR YJLOOBC OR J1374.
Saccharomyces cerevisiae (Baker's yeast).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP, P48424; IA6D.
SGD; SO003545; CCT8.
InterPro; IPR002423; TCP1_cpn60.
InterPro; IPR002194; TCP1.
Pfam; PF00118; Cpn60_TCP1; 1.
                                                                                                                                                                                                                                                              56675 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00304; TCOMPLEXTCP1.
PROSITE: PS00750; TCP1_1; 1.
PROSITE: PS00751; TCP1_2; 1.
PROSITE: PS00995; TCP1_3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; Z49284; CAA89300.1; -.
                                                                                                                                                                                                                                                                                                                                                Query Match 71.1
Best Local Similarity 100.
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                  24
302
499
309
                                                                                                                                                                                                 303 4
121 3
499 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 238 ALGINAV 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 ALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCPQ_YEAST
P47079:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chaperone;
SEQUENCE
```

Search completed: August 23, 2002, 09:55:24 Job time: 54 sec

THIS PAGE BLANK (USPTO)

Fri

```
ö
     hepatitis hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
055426
055427
055429
055439
055433
055433
055433
055433
00404
036509
036609
036609
036609
036609
036609
036609
03610
009445
009445
009445
009446
009462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 45; DB 12; Length 253; ilarity 100.0%; Pred. No. 0.52; Conservative 0; Mismatches 0: Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035122; AAB88140.1; -.
HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26732 MW; 780BC94A2A9DF1B2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
055426
055427
055429
055431
055433
055433
055433
055433
055433
055433
055609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036609
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
036600
03600
03600
03600
03600
03600
03600
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9WJT2
093090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MENCO'S; S29.001; -.
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam; PP00271; helicase_C; 1.
ATP-binding; Helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUN-1998 (TrEMBLrel. 06, 01-JUN-1998 (TrEMBLrel. 06, 01-DC-2001 (TrEMBLrel. 19, POLYPROTEIN (FRAGENT). Hepatitis C virus.
   253
2428
3011
3011
3011
3011
3011
2015
253
253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      253 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepacivirus.
NCBI_TaxID=11103;
10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

10000

100000

100000

100000

100000

10000

10000

10000

10000

10000
   NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         055407
055407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
055407
 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hepatitis chepatitis c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (without alignments)
12.372 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                              August 23, 2002, 10:21:59; Search time 139.83 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         055407
055408
055408
055410
055411
055411
055413
055414
055419
055419
055422
055422
055423
055423
055423
                   GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                     562222 seqs, 172994929 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           055407
055408
055409
055410
055411
055411
055413
055417
055417
055420
055420
055423
                                                                                                                                                                                                                                                                               BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sp_human:*
sp_invertebrate:*
sp_mammal:*
sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_vertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp_rvirus:*
sp_bacteriap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sp_archea:*
sp_bacteria:*
sp_fungi:*
                                                                                                                                                                                                                                                                                                                                                                                                             Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                               US-08-854-825-28
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sp_plant:*
sp_rodent:*
sp_virus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPTREMBL_19:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1000.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database
                                                                                                                              Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
يو
```

```
SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
"Sequence analysis of HCV NS3 variants from a patient infected with
"Sequence analysis of HCV NS3 variants from a patient infected with
                                                                                                                                                                                                                                                                                                                                                                                                                                 Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 45; DB 12; Length 253; 100.0%; Pred. No. 0.52; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HCV.";
Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035125; AAB88143.1; -.
HSSP: P27958; 1HEI.
MEROPS; S29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases EMBL; AF035126; AAB88144.1; ... HSSP: P27958; HBLI. MEROPS; S29.001; ... MEROPS; S29.001; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 253 253
253 AA; 26871 MW; 994B15908EBBD578 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   253 253 26828 MW; 4F882749AB72997B CRC64;
                                                                                                                                                                                                                                                                                                 01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-JUN-1998 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                               253 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          253 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR001410; DEAD.
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam; PF00271; helicase_C; 1.
ATP-binding; Helicase.
NON_TER 253 253
SEQUENCE 253 AA; 26871 MW; 99418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam; PF00271; helicase_C; 1.
APP-binding; Helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JUN-1998 (TrEMBLrel. 06, 01-JUN-1998 (TrEMBLrel. 06, 01-DEC-2001 (TrEMBLrel. 19, POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                 109 KLVALGINAV 118
                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER
SEQUENCE
                                                                                                                                                                                                                                            055410
055410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   055411;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       055411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                    RESULT
                                                                                                                                                                                                             055410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db
                                  ŏ
                                                                                          g
                                                                                                                                                                                                                                                   A PAC O O C O O C O O C O O C O O C O O C O O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O C O 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. Wang H., Eckels D.D.; Wang H., Eckels D.D.; "Sequence analysis of HCV NS3 variants from a patient infected with "Vequence".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [1] WANG FROM N.A. WANG WANG WANG HOLD.; WANG H., ECKELS D.D.; "Sequence analysis of HCV NS3 variants from a patient infected with HCV.";
                                                                                                                                                                                                                                                         Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 253;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 45; DB 12; Length 253; ilarity 100.0%; Pred. No. 0.52; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035123; AAB88141.1; -.
HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL: ARO35124; ARB881142.1; -.
HSSP: P27958; 1HEI.
MEROPS; S29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 253 253 253 259 MW; CFB748C19A98DBC1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               253 253
253 AA; 26839 MW; 4E2C980D5598DBD1 CRC64;
                                                 055408 PRELIMINARY; PRT; 253 AA. 055408; 01-JUN-1998 (TrEMBLrel. 06, Created) 01-JUN-1998 (TrEMBLrel. 06, Last sequence update) 01-DEC-2001 (TrEMBLrel. 19, Last annotation update) POLYPROTEIN (FRACMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 45; DB 12;
100.0%; Pred. No. 0.52;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        253 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEROPS; 529.001; -.
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Hellcase_C.
InterPro; IPR001650; Hellcase_C.
SMART; SW00490; HELLCS; 1.
ATP-binding; Hellcase.
NON_TER 1 1
NON_TER 253 253
SEQUENCE 253 AA; 26895 WW; CFB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               055409
055409;
01-JUN-1998 (TrEMBLrel. 06, C. 01-JUN-1998 (TrEMBLrel. 06, L. 01-DEC-2001 (TrEMBLrel. 19, L. POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam: PF00271; helicase_C; 1
ATP-binding; Helicase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
RESULT
055408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
055409
                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCOOC OOC DET THE STAND OF THE
```

ó

Gaps

ö

Gaps

.. 0

```
SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
                                                                                                                                                                                                                                                              01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. Wang H., Eckels D.D.; "Sequence analysis of HCV NS3 variants from a patient infected with HCV,":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 45; DB 12; Length 253; 100.0%; Pred. No. 0.52; tive 0; Mismatches 0; Indels
                                                                                       Query Match 100.0%; Score 45; DB 12; Length 253; Best Local Similarity 100.0%; Pred. No. 0.52; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                       HCV.";
Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035131; AAB88149.1; -.
HSSP; P27958; HEI.
MEROPS; S29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HCV.";
Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
                                      253
26831 MW; 74389E3256BAFD98 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER 1 1
NON_TER 253 253
SEQUENCE 253 AA; 26811 MW; 4E2C980D558A53D1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                        253 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         253 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001410; DEAD.
InterPro; IPR001650; Hellcase_C.
Pfam; PF00271; hellcase_C; 1.
ATP-binding; Hellcase.
Pfam; PF00271; helicase_C; 1.
ATP-binding; Helicase.
NON_TER 1 1
NON_TER 253 253
SEQUENCE 253 AA; 26831 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-1998 (TrEMBLrel. 06, 01-JUN-1998 (TrEMBLrel. 06, 01-DEC-2001 (TrEMBLrel. 19, POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                             109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |||||||||||
109 KLVALGINAV 118
                                                                                                                                              1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11103;
                                                                                           Query Match
                                                                                                                                                                                                                                     055416
055416;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    055417;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         055417
                                                                                                                                                                                                             œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                σ
                                                                                                                                                                                                             RESULT
055416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            055417
  KW
FT
SO
                                                                                                                                               δ
                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
HCV.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [1] SEQUENCE FROM N.A..
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
HCV.";
                                                                                                                                                                                                                                                 Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                  ö
                        Query Match 100.0%; Score 45; DB 12; Length 253; Best Local Similarity 100.0%; Pred. No. 0.52; Matches 10; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
100.0%; Score 45; DB 12; Length 253;
Best Local Similarity 100.0%; Pred. No. 0.52;
Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035129; AAB88147.1; -.
HSSP; P27958; 1HEI.
MEROPS; S29.001; -.
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                      Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26851 MW; 4E2913163990C8D1 CRC64;
                                                                                                                                                                  O55413 PRELIMINARY, PRT, 253 AA.
055413,
01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        253 AA.
                                                                                                                                                                                                                                                                                                                                                                              01-JUN-1998 (TrEMBLrel. 06, 01-JUN-1998 (TrEMBLrel. 06, 01-DEC-2001 (TrEMBLrel. 19, POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        253 2
253 AA;
                                                                                          109 KEVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      055414
                                                                                                                                            9
                                                                                                                                            RESULT
055413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                            δ
                                                                                                                                                                      ò
```

ö

Gaps

; 0

Gaps

ó

```
SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
HCV.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 45; DB 12; Length 253; 100.0%; Pred. No. 0.52; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 45; DB 12; Length 253; 100.0%; Pred. No. 0.52; vative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL: AF03135; AAB88153.1; -.
EMBL: AF03135; AAB88153.1; -.
HSSP; P27958; HHEI.
MEROPS; S29.001; -.
InterPro; IPR001410; DEAD.
InterPro; IPR00150; Helicase_C; I.
Pfam; PF00271; helicase_C; I.
ATP-binding; Helicase.
NON_TER 1 1 1
NON_TER 253 AA; 26897 MW; CC00BACF797925FD CRC64;
                                                                                          Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035134; AAB88152.1; -.
HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                         253
26897 MW; CC00BACF797925FD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       055420;
01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-JDEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAMBUT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      253 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                253 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                          Interpro; IPR001410; DEAD.
Interpro; IPR001650; Hellcase_C.
Pfam; PF00271; hellcase_C; 1.
ATP-binding; Hellcase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
055422
AC 055422 PRELIMINARY;
AC 055422;
DT 01-JUN-1998 (TFEMBLrel. 06, Cr
DT 01-JUN-1998 (TFEMBLrel. 06, La
DT 01-DEC-2001 (TFEMBLrel. 19, La
DE POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                            Query Match 100.4
Best Local Similarity 100.4
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                          1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
                                                                                                                                                       MEROPS; S29.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
0
                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A..
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
HCV.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus
                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ·
0
                                                                                                                                                                                                                                                           Length 253;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 253;
                                                                                                                                                                                                                                                     Query Match 100.0%; Score 45; DB 12; Length 2 Best Local Similarity 100.0%; Pred. No. 0.52; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.0%; . Score 45; DB 12; Length 2 Best Local Similarity 100.0%; Pred. No. 0.52; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035133; AAB88151.1; -.
HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER 1 1
NON_TER 253 253
SEQUENCE 253 AA; 26849 MW; 1FFE49DE559BD99A CRC64;
                                                                                                                                                                                               4E2C980D5598D8D1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          055419;
01-JUN-1998 (TrEWBLrel. 06, Created)
01-JUN-1998 (TrEWBLrel. 06, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-JUN-1998 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                253 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEROPS; S29.001; ...
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam; PF00271; helicase_C; 1.
ATP-binding; Helicase.
                                                                   InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam: PF00271; helicase_C; 1.
ATP-binding; Helicase.
                                                                                                                                                                            253 253
253 AA; 26839 MW;
            EMBL; AF035132; AAB88150.1;
HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                              109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                       1 KLVALGINAV 10
                                                      MEROPS; S29.001; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID-11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=11103;
[1]
                                                                                                                                                  NON_TER
NON_TER
SEQUENCE
```

055418 055418; RESULT 10 055418

g ò

ö

Gaps

ö

RESULT 11 055419 AC 055419 DT 01-JUN DT 01-DEC DS HEPALLI OC VILUSEE OX NCBLTI RN [1]

055419

ò a

```
109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                      1 KLVALGINAV 10
                                                                                    NCBI_TaxID=11103;
                                                                                                                                                                                                                                                 253
                                                                                                                                                                                                                                      NON_TER
NON_TER
SEQUENCE
 ò
                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                  SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
HEV.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. Wang H., Eckels D.D.; "Sequence analysis of HCV NS3 variants from a patient infected with
  Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                           01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-JUN-1998 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
Viruses: SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
NCBI_TAXID=11103;
                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                    100.0%; Score 45; DB 12; Length 253; 100.0%; Pred. No. 0.52; tive 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 45; DB 12; Length 253; 100.0%; Pred. No. 0.52; tive 0; Mismatches 0; Indels (
                                                                                  HCV.";
Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035137; AAB88155.1; -.
HSSP; P27958; 1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV.";
Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF035138; AAB88156.1; -.
HSSP; P27958; 1HEI.
                                                                                                                                                                                          253 253 254 26867 MW; 12C186C261F8964E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     253 253 253 253 AW; 1FE43BB6EBE13F4F CRC64;
                                                                                                                                                                                                                                                                                                                                                          253 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     253 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                          MEROPS; S29.001; ...
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam; PF00271; helicase_C; 1.
ATP-binding; Helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEROPS; $29.001; ...
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam; PF00271; helicase_C; 1.
ATP-binding; Helicase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                          109 KLVALGINAV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     109 KLVALGINAV 118
                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                               1 KLVALGINAV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 KLVALGINAV 10
Hepatitis C virus
                                                                                                                                                                                           NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                        055423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        055424
ID 055424
                                                                                                                                                                                                                                                                                                                                  RESULT 14
055423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 15
                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
ò
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
Wang H., Eckels D.D.;
"Sequence analysis of HCV NS3 variants from a patient infected with
HVV ".
                                                                                                                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 45; DB 12; Length 253; 100.0%; Pred. No. 0.52; ative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases. EMBL; AF035139; AAB88157.1; -... HSSP; P27958; 1HEI. IP27958; 1HEI. InterPro; IPR001410; DEAD. InterPro; IPR001650; Helicase_C. Pfam; PF00271; helicase_C; 1... ATP-binding; Helicase_C; 1...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                253 AA; 26882 MW; 0A9693B336EAA303 CRC64;
01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   253
```

Search completed: August 23, 2002, 10:21:59
Job time: 1499 sec

. ... •

```
August 23, 2002, 10:01:01; Search time 179.72 Seconds (without alignments) 5.562 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                  747574
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                         747574 segs, 111073796 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                               OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                              BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A_Geneseq_032802:*
                                                                                                                                                                                                 US-08-854-825-42
45
                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                       1 ILDSFDPLV 9
                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                           Searched:
                                                                                                                  Run on:
```

A_Geneseq_03802:*

1. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1980.DAT:*
2. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1981.DAT:*
3. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1982.DAT:*
4. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1983.DAT:*
5. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1983.DAT:*
6. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1985.DAT:*
7. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1985.DAT:*
8. /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1989.DAT:*
9. /SIDSI/gcgdata/hold-geneseqy-embl/AA1989.DAT:*
110: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1989.DAT:*
111: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
112: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
113: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
114: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
115: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
116: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
117: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
118: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
120: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
121: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
122: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
123: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
124: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
125: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
126: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*
127: /SIDSI/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		ď			SUMMARIES	
Result No.	Score	Query Match	Query Match Length DB ID	DB	ID	Description
-	45	100.0	6	16	AAR84577	Cytotoxic T-cell e
7	45	100.0	σ	20	AAY10237	T_cell epitope/MHC
٣	45	100.0	σ	20	AAY10518	HLA Class I motif
4	45	100.0	44	13	AAR20755	Peptide 5 based on
2	45	100.0	47	13	AAR20763	Pertide 13 based o
9	45	100.0	55	13	AAR20762	Peptide 12 based o
7	45	100.0	55	18	AAW01867	HCV NS-5 prototype
æ	45	100.0		10	AAP90151	Sequence of hepati
6	45	100.0		10	AAP92034	Sequence encoded i
10	45	100.0	195	15	AAR62660	Hepatitis Type-C v
11	45	100.0		17	AAR90934	HCV NS5 domain ant

AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides

Claim 1; Page 71; 85pp; English.

XX CC

HCV non-structural Chimpanzee HCV clo Hepatitis Type C v Hepatitis C virus Hepatitis C virus Hepatitis C virus	S 2 2 2 2 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3	recombinantercombinant	ნ შ⊆	HCV polypeptide 1. Sequence encoded i Peptide encoded by HCV amino acid seq Hepatitis C virus Protein encoded by HCV-1 polyprotein. COMPOSITE HCV HC-J COMPOSITE HCV HC-J
AAW67010 AAR14553 AAR62659 AAR81941 AAW70825	AAR31557 AAR33634 AAR33576 AAR31596 AAB51374	AAB62631 AAB62631 AAB62633 AAB62634 AAB62634 AAB62635	AAP90158 AAB62636 AAB62638 AAB62639 AAB62637 AAP90164 AAP90164	AAR25135 AAP92050 AAP90288 AAR28582 AAR8123 AAB18540 AAR344009 AAR74030
119 115 116 20	111111111111111111111111111111111111111	75 75 75 75 75 75 75 75 75 75 75 75 75 7	10755550	13 10 110 113 114 113
504 504 504 504 504	5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	798 1766 1771 1771 1771 1771	1786 1892 1911 1921 1944 2261 2301	2435 2436 2436 2436 2772 2772 2816 2894 2894
100.00	000000000000000000000000000000000000000	1000.001	100.0 100.0 100.0 100.0 100.0	100.0 100.0 100.0 100.0 100.0 100.0
4 4 4 4 4 4 7 5 5 5 5 5 5 5	. 4 4 4 4 4 	4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5	4 4 4 4 4 4 4 2 2 2 2 2 2 2 2 2	4 4 4 4 4 4 4 4 2 2 2 2 2 2 2 2 2 2 2 2
12 13 14 15 16	2210 2210 2210	1420100 1470100	30 33 33 30 30 30 30 30 30 30 30 30 30 3	337 7888338 784444 7645 7645 7645 7645 7645 7645 7645

ALIGNMENTS

RESULT AAR845	RESULT 1 AAR84577
ΙD	AAR84577 standard; peptide; 9 AA.
××	
AC	AAR84577;
XX	
DŢ	25-APR-1996 (first entry)
XX	
DE	Cytotoxic T-cell epitope, aa 2252-2260 of HCV-1 NS5 region.
XX	
ΜX	Hepatitis C virus; HCV; epitope; vaccine; immunogen.
××	
SO	Hepatitis C virus.
×	
PN	W09525122-A1.
XX	
PD	21-SEP-1995.
XX	
ΡF	16-MAR-1995; 95WO-US03224.
××	
PR	17-MAR-1994; 94US-0214650.
XX	
PA	(SCRI) SCRIPPS RES INST.
××	
Ιd	Cerny A, Chisari FV;
XX	
DR	WPI; 1995-336941/43.
XX	
ΡŢ	Novel molecule comprising a cytotoxic T cell epitope - used to
ΡŢ	vaccinate against hepatitis C viral infection
XX	

Length 9;

~

```
The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comppises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumnour-specific multilineage antigen, an embryonic antigen, an encogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes place in the miliau of the lymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAX10071 to AAX10639 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                        ;
0
from the core, El, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptide specific cytotoxic T-cell activity. The peptides AAR84570-77 were found to have substantial homology with a T-
                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cytotoxic T-lymphocyte response; CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                      ;
                                                          cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                   Length 9;
                                                                                                                                                                                        Indels
                                                                                                                                                 100.0%; Score 45; DB 16;
100.0%; Pred. No. 6.4e+05;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T cell epitope/MHC ligand SEQ ID NO:167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Page 30; 199pp; English.
                                                                                                                                                                                                                                                                                                                                                       AAY10237 standard; Peptide; 9 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98WO-US14289.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97us-0988320.
                                                                                                                                                                                                                                                                                                                                                                                                                                 12-MAY-1999 (first entry)
                                                                                                                                                                                        9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kuendig TM, Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-120514/10.
                                                                                                                                                   Ouery Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                         1 ILDSFDPLV 9
                                                                                           9 AA;
                                                                                                                                                                                                                                              10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                            AAY10237;
                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                    RESULT
AAY10237
                                                                                                                                                                                                                                                                                                                                                                                            SSSSXS
                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                              g
```

9 AA;

Sequence

```
The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintaining the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. maligant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes collace in the miliau of the lymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAX10071 to AAX10639 represent examples of peptide antigens given in the present invention.
                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                             Cytotoxic T-lymphocyte response, CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 9;
                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
100.0%; Score 45; DB 20;
llarity 100.0%; Pred. No. 6.4e+05;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
100.0%; Score 45; DB 20;
Best Local Similarity 100.0%; Pred. No. 6.4e+05;
Matches 9; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                            HLA Class I motif peptide SEQ ID NO:448.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 44; 199pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                                                                                                                                                                  AAY10518 standard; Peptide; 9 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98WO-US14289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97US-0988320
97CA-2209815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Simard JJL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-120514/10.
 Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus.
                                                                       6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9 AA;
                                                                         1 ILDSFDPLV
                                                                                            1 ildsfdplv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO9902183-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10-DEC-1997;
10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-JUL-1998;
                                                                                                                                                                                                                                                                        12-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kuendig TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic.
                                                                                                                                                                                                                                      AAY10518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                c
                                                                                                                                                                                   AAY10518
                                                                                                                                                                RESULT
                                                                                                                                                                                                                                        g
```

m

```
New synthetic peptide specific for HCV antibodies - for detection of HCV or NANBHV e.g. by enzyme-linked immunosorbent assay and is immunogen for preparation of vaccines
                                                                                                                                                                                                                                                                                          This peptide is one of 19 specifically claimed antigens based on timmunoreactive regions of the envelope protein and non-structural proteins NS-1, NS-2, NS-3 and NS-5 for the Hepatitis C virus. The invention also concerns analogues, segments, mixtures, conjugates and polymers of these peptides. The C-terminal amino acid may be amidated. See AAR20751-R20782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Peptide 12 based on immunoreactive region of Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Non-A, non-B hepatitis virus; non-structural protein; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 45; DB 13; Length 47; ilarity 100.0%; Pred. No. 0.062; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR20762 standard; Protein; 55 AA.
                                                                                                                                                                                                                                                                        Claim 1; Page 90; 98pp; English.
                                                                                          91US-0719819.
90US-0558799.
91US-0651735.
91US-0667275.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91US-0719819.
90US-0558799.
91US-0651735.
91US-0667275.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91EP-0112620
                                                                   91EP-0112620
                                                                                                                                                     (UNBI-) UTD BIOMEDICAL INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (UNBI-) UTD BIOMEDICAL INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                           Chang YW, Hosein B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chang YW, Hosein B;
                                                                                                                                                                                                 WPI; 1992-034279/05.
                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27
                                                                                                                                                                                                                                                                                                                                                                               47 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-JUL-1990;
07-FEB-1991;
11-MAR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26-JUL-1990;
07-FEB-1991;
11-MAR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-JUL-1991;
                                                                   :6-JUL-1991;
                                                                                           24-JUN-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24 -JUN-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-MAY-1992
                                              29-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EP468527-A.
 Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR20762;
                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This peptide is one of 19 specifically claimed antigens based on the immunoreactive regions of the envelope protein and non-structural proteins NS-1, NS-2, NS-3 and NS-5 for the Hepatitis C virus. The invention also concerns analogues, segments, mixtures, conjugates and polymers of these peptides. The C-terminal amino acid may be amidated. See AAR20751-R20782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                          New synthetic peptide specific for HCV antibodies - for detection of HCV or NANBHV e.g. by enzyme-linked immunosorbent assay and is immunogen for preparation of vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peptide 13 based on immunoreactive region of Hepatitis C virus
                                                                                                                                                  Peptide 5 based on immunoreactive region of Hepatitis C virus
                                                                                                                                                                           Non-A, non-B hepatitis virus; non-structural protein; vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Non-A, non-B hepatitis virus; non-structural protein; vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR20755 standard; Protein; 44 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 1; Page 88; 98pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR20763 standard; Protein; 47
                                                                                                                                                                                                                                                                                            91US-0719819.
90US-0558799.
91US-0651735.
                                                                                                                                                                                                                                                                       91EP-0112620
                                                                                                                                                                                                                                                                                                                               91US-0667275
                                                                                                                                                                                                                                                                                                                                                        (UNBI-) UTD BIOMEDICAL INC.
                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                               Hosein B;
                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1992-034279/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30 ildsfdplv 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                44 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ILDSFDPLV 9
1 ILDSFDPLV 9
             05-MAY-1992
                                                                                                                                                                                                                                                                      26-JUL-1991;
                                                                                                                                                                                                                                                                                                        26-JUL-1990;
07-FEB-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-MAY-1992
                                                                                                                                                                                                                                                                                             24-JUN-1991;
                                                                                                                                                                                                                                                                                                                               11-MAR-1991;
                                                                                                                                                                                                                                               29-JAN-1992
                                                                                                                                                                                                                        EP468527-A.
                                                                                                                                                                                                                                                                                                                                                                              Chang YW,
                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR20763;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                   AAR20755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR20763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

ö

Gaps

; 0

4

```
This peptide is the prototype peptide for design of synthetic peptides immunoreactive with Hepatitis C virus (HCV) antibodies against the NS-5 protein. The synthetic peptides containing substitutions as indicated in the FT above, can be used in a novel composition which comprises at least one linear or branched peptide (A) of formulae: P1-Y; P2-X; P4X2X; P8X4XXX; or P16X8X4XXX; Y = COOH or CONH2 at the peptide C terminus; X = residues of amino acids (aa), or analoques with 2 amino gps. and one COOH gp., each gp. able to form a peptide bond; P = peptide that is specifically immunoreactive with HCV antibodies. The compositions are used to detect HCV antibodies, e.g. for screening blood products, and to diagnose HCV infection by immunoasay of serum, tissue (extracts) and body fluids, pref. by ELISA, sandwich or passive haemagglutination tests.
                                     Claim 10; Page 31-32; 46pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Choo QL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1989-215054/30.
N-PSDB; AAN90320.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41 ildsfdplv 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pan troglodytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-NOV-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-NOV-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GB2212511-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Houghton M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAP90151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP90151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
       \mathbf{x} \overset{\mathsf{A}}{\sim} \overset{\mathsf{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          immunoreactive; HCV; Hepatitis C Virus; antibody; screening; blood; diagnose; infection; immunoassay; core protein; NS-4; NS-5.
                                                                                                                                                                                                                                                                                   This peptide is one of 19 specifically claimed antigens based on timmunoreactive regions of the envelope protein and non-structural proteins NS-1, NS-2, NS-3 and NS-5 for the Hepatitis C virus. The invention also concerns analogues, segments, mixtures, conjugates and polymers of these peptides. The C-terminal amino acid may be amidated. See AAR20751-R20782.
                                                                   New synthetic peptide specific for HCV antibodies - for detection of HCV or NANBHV e.g. by enzyme-linked immunosorbent assay and is immunogen for preparation of vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Compsn. contg. synthetic peptide(s) reactive with hepatitis C related antibodies - used for screening blood and diagnosis of infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note= "can be substituted with Asparagine"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "can be substituted with Norleucine"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'note= "can be substituted with Norvaline"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'note- "can be substituted with Ornithine"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "can be substituted with Norvaline"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note= "can be substituted with Ornithine"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 45; DB 13; Length 5 100.0%; Pred. No. 0.075; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV NS-5 prototype immunoreactive peptide 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW01867 standard; peptide; 55 AA.
                                                                                                                                                                                                                       Claim 1; Page 89; 98pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (UNBI-) UNITED BIOMEDICAL INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95DE-1040105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         95US-0530550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       07-NOV-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9; Conservative
WPI; 1992-034279/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1997-120479/12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hosein B, Wang CY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc-difference 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Misc-difference 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Misc-difference 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111111111
41 ildsfdplv 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55 A.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DE19540105-C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-SEP-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20-FEB-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAW01867;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW01867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus gene - used for prodn. of polynucleotide probes, polypeptide(s) and antibodies for diagnosis, prevention and treatment of infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The sequence is the peptide encoded by the hepatitis C virus (HCV) cDNA insert in clone 8f (see AAN90320). The polypeptides are used to diagnose HCV-induced NANBH, to raise antibodies for immunoassay or treatment, or to produce vaccines. The region shown overlaps with clone 14c.
                                                                 ;
     Score 45; DB 18; Length 55; Pred. No. 0.075;
                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis C virus; clone 8f; clone 14c; probe; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence of hepatitis C virus cDNA insert in clone 8f.
                                                                 0;
100.0%; Score 45; ...
100.0%; Pred. No. 0.0
''ve 0; Mismatches
                                                                                                                                                                                                                                                                                                      126 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; fig 19; 235pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kuo G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88GB-0027024.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87US-0122714.
                                                                                                                                                                                                                                                                                                    AAP90151 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (CHIR ) CHIRON CORPORATION.
                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
             Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
```

S

```
30-JUN-1995 (first entry)
                                                                                                                15-APR-1994;
                                                                                                                               22-APR-1993;
                                                                                  WO9424565-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-MAY-1996
                                                                                                  27-OCT-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR90934;
                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                              Kim JP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR90934
δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;;
                                                                                                                                                                                                                                                                                                                                                                              It is the sequence encoded in the hepatitis C virus (HCV) cDNA insert in clone 8f. Tag a = the region of overlap with the HCV antigen encoded in clone 14c. It is an epitope which could be used as immunoassay reagents and vaccines and to generate antibodies useful in diagnosis and passive immunotherapy for HCV infection/non-A, non-B hepatitis.
                                                                                                                                             Sequence encoded in the hepatitis C virus (HCV) cDNA insert in clone 8f.
                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 45; DB 10; Length 126; larity 100.0%; Pred. No. 0.21; Conservative 0; Mismatches 0; Indels (
              Length 126;
                             Indels
                                                                                                                                                            Hepatitis C virus (HCV); non-A, non-B hepatitis (HANBH)
                                                                                                                                                                                                                                                                                                                                          Purified hepatitis C virus - and associated nucleic acids and polypeptide(s)
                             .;
0
            DB 10;
              Score 45; DB 10
Pred. No. 0.21;
Mismatches
                                                                                                                                                                                                                                                                      88US-0271450; US-122714
                                                                                                                                                                                                                                                                                                                                                                 Claim 13; Figure 19; 139pp; English.
                                                                                                                                                                                           Location/Qualifiers
                                                                                                AAP92034 standard; protein; 126 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR62660 standard; Protein; 195 AA.
                            ö
                                                                                                                                                                                                                                                                                                      Ġ
            100.0%;
                                                                                                                                                                                                                                                                                                      Kuo
                                                                                                                                                                                                                                                       88EP-0310922
                                                                                                                                                                                                   1..24
/*tag= a
                                                                                                                              (first entry)
                             Conservative
                                                                                                                                                                                                                                                                                                     Choo q-L,
     Query Match
Best Local Similarity
'Local 9; Conserve
                                                                                                                                                                                                                                                                                     (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                   WPI; 1989-159274/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                            Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                              126 AA;
                                                    1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                            N-PSDB; AAN92090
                                                                                                                              02-MAR-1990
                                                                                                                                                                                                                                                       18-NOV-1988;
                                                                                                                                                                                                                                                                       14-NOV-1988;
                                                                                                                                                                                                                                                                                                     Houghton M,
                                                                                                                                                                                                                                       31-MAY-1989
                                                                                                                                                                                                                         EP318216-A.
                                                                                                                                                                                                                                                                                                                                                                                                                               Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR62660;
                                                                                                                                                                                                   Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR62660
                                           ò
                                                           q
                                                                                                         ογ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
```

```
clone 36-1 containing a portion of the type-C hepatitis virus (RCV).

The sequence was one of 3 subfragments PCR-amplified from clone pET-36 using primers (AAQ73010-5). The resultant 614 bp fragment was ligated into lambda gill for expression of the polypeptide fragment was ligated into lambda gill for expression of the polypeptide fragment from clone plasmid pET-36 was constructed by inserting the DNA sequence from clone 36 (AAQ73003) in the vector pET3d. Clone 36, whose DNA was isolated by immunoscreening lambda-qill cDNA libraries made from the serum from one parenterally transmitted non-A, non-B hepatitis (PT-NANBH) chimpanzee and A PT-NANBH human patients, covers the sequence from bases 5010-6516 of the published HCV sequence and encodes a polypeptide of 504 amino acids. The polypeptides encoded by the DNA fragments can be used to generate antibodies to HCV antigens. The antibodies are useful for the detection of hepatitis type C antigens or for immunoprophylaxis. The polypeptides can also be used as vaccines effective against HCV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                          Hepatitis virus; HCV; hepatitis; immunoscreening; parentally; PT-NANBH; parentrally transmitted; non-A, non-B hepatitis; chimpanzee; human; PCR; amplification; amplify; primer; antibody; antigen; detection; immunoprophylaxis; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The amino acid sequence of the polypeptide encoded by the subfragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New hepatitis C virus poly:peptide(s) - used for detection and prodn. of antibodies for detection or immuno:prophylaxis, or in vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Non-A non-B hepatitis virus; NANBHV; HCV; antigen; detection; diagnosis; antibodies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 195;
Hepatitis Type-C virus subfragment clone 36-1 polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 45; DB 15;
100.0%; Pred. No. 0.36;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 5; Page 73-74; 94pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR90934 standard; Protein; 411 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GENE-) GENELABS TECHNOLOGIES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94WO-US04174.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                               Hepatitis C-type Virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HCV NS5 domain antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Moeckli R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1994-342055/42.
N-PSDB; AAQ73016.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 ildsfdplv 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        195 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ILDSFDPLV 9
```

9

ö

Gaps

Choo Q,

Claim

```
This sequence represents the Hepatitis C virus (HCV) non-structural (NS4) protein. The invention relates to peptide analogues derived from HCV proteins, e.g. ANN67417-W67426, which can be used for the determination of anti-HCV antibodies in a sample. Preferably the peptide analogues contain one or more thioamide peptide bonds where at least one oxygen atom of the peptide bond is replaced by sulphur atom. The peptide analogues can be adsorbed or chemically bound to a carrier.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cDNA libraries were prepared from the serum of one HCV infected chimpanzee and 4 HCV infected humans. The 5 libraries were immunoscreened using HCV positive human and chimp sera. Inserts from HCV-immunopositive clones derived from chimp sera were characterised sexogenous to normal human PBL DNA. Two of these HCV clones were 36 corresponds to nucleotides 5010 to 6516 of the HCV sequence of clone 1 lambda gill clone of clone 35 in E.coli was deposited as ATCC 40901. See AAQ14276 (clone 40).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New hepatitis C virus epitope(s) immuno-reactive with HCV infected sera - useful for detection of HCV infections and as HCV
                                                                                                                                                                                                                                                                                                 .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 45; DB 12; Length 504; ilarity 100.0%; Pred. No. 1.2; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                         Length 499;
                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                       100.0%; Score 45; DB 19;
100.0%; Pred. No. 1.2;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 non-A, non-B hepatitis; NANBH; liver disease; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Simonsen CC;
    Disclosure; Page 5; 13pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR14553 standard; Protein; 504 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 2; Fig 4; 150pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kim JP, Moeckli R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91WO-US02370.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90US-0594854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90US-0505611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                             Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chimpanzee HCV clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GENE-) GENELABS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1991-325174/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                              .184 ildsfdplv 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA;
                                                                                                                                                                                                  499 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C Virus
                                                                                                                                                                                                                                                                                                                                      1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-OCT-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9115516-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-0CT-1991
                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Reyes G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR14553;
                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR14553
    δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                             The combination comprises an HCV antigen from the C domain (pref. C22 - AAR90936) and at least one HCV antigen from the NS3 (pref. C33c - AAR90932), NS4 (pref. C100 - AAR90933), S (pref. S2 - AAR90935) or NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV; nucleocapsid; core protein; analogue; antibody;
tein; thioamide bond; peptide bond.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The antigers may in the form of a fusion protein, a simple physical mixture, or the individual antigens commonly bound to a solid matrix. They are pref. prepd. by recombinant DNA techniques (primers are given in AAT12711-T12716), but can be synthesised or isolated from HCV using affinity chromatography.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                 Combinations of synthetic Hepatitis C Virus antigens - provide more effective diagnosis of Non-A, Non-B Hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Determination of antibody in sample - uses peptide analog absorbed or chemically bound on carrier as antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 45; DB 17; Length 411; 100.0%; Pred. No. 0.92; 1.1ve 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                          8; Fig 1(A-Y); 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW67010 standard; protein; 499 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HCV non-structural protein NS4.
                                                                                                                     91EP-0114016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97JP-0034702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 non-structural protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (KYOW ) KYOWA MEDEX KK.
                                                                                                                                                                                                                                       Houghton M,
                                                                                                                                                                                              (CHIR ) CHIRON CORP
                                                                                                                                                                                                                                                                       WPI; 1996-117956/13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1998-515103/44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (AAR90934) domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         199 ildsfdplv 207
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               411 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ILDSFDPLV 9
                                                                                                                 03-APR-1991;
                                                                                                                                                          04-APR-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JP10226698-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19-FEB-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-FEB-1997;
                                      EP693687-A1
                                                                               24 - JAN - 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-AUG-1998
```

Sequence

Query Match

Matches

g

ò

AAW67010;

AAW67010

ö

Gaps

ò g

```
Hepatitis C virus; HCV; antigen; detection; diagnosis; vaccine;
                                                                                                                                               antibodies; immunoprophylaxis; sera; serum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Search completed: August 23, 2002, 10:01:01 Job time: 391 sec
                                                                                                                                                                                     Hepatitis C virus (Clone 303-1-4).
                                                                                                                                                                                                                                                                                                                                      91US-0681703.
90US-0505611.
90US-0594854.
                                                     28-JUL-1996 (first entry)
                                                                                        Hepatitis C virus antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                 (GENE-) GENELABS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Moeckli R,
                                                                                                                                                                                                                                                                                                                                    05-APR-1991;
06-APR-1990;
10-OCT-1990;
                                                                                                                                                                                                                                                                                                 06-APR-1990;
                                                                                                                                                                                                                          US5443965-A.
                                                                                                                                                                                                                                                              22-AUG-1995
                 AAR81941;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kim JP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The amino acid sequence of a portion of the type-C hepatitis virus (HCV) The corresponding DNA was isolated by the immunoscreening of lambda-gtill cDNA libraries made from the serum from one parenterally transmitted non-A, non-B hepatitis (PT-NANBH) chimpanzee and 4 PT-NANBH human patients. This clone, designated clone no. 36 covered the sequence from bases 5010-6516 of the published HCV sequence and encodes a polypeptide of 504 amino acids. This clone was inserted into the pET3d vector to generate clone pET-36. The published HCV sequence and encodes a polypeptide overlapping subfragments (AAQ73016-8) by PCR amplification using primers (AAQ73010-5). The polypeptides encoded by the DNA fragments can be used to generate antibodies to HCV antigens. The antibodies are useful for the detection of hepatitis type C antigens or for immunoprophylaxis. The polypeptides can also be used as vaccines effective against HCV.
                                                                                                                                                                                                                                                                                             Hepatitis virus; HCV; hepatitis; immunoscreening; parentally; PT-NANBH; parentally transmitted; non-A, non-B hepatitis; chimpanzee; human; PCR; amplification; amplify; primer; antibody; antigen; detection; immunoprophylaxis; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                            Hepatitis Type C virus protein fragment encoded by bases 5010-6516.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New hepatitis C virus poly:peptide(s) - used for detection and prodn. of antibodies for detection or immuno:prophylaxis, or in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 45; DB 15; Length 504; 100.0%; Pred. No. 1.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 5; Page 60-63; 94pp; English.
                                                                                                                                             AAR62659 standard; Protein; 504 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GENE-) GENELABS TECHNOLOGIES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94WO-US04174.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93US-0052542.
                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C-type Virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kim JP, Moeckli R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1994-342055/42.
N-PSDB; AAQ73003.
                                   111111111
133 ildsfdplv 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133 ildsfdplv 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     504 AA;
             1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-APR-1993;
                                                                                                                                                                                                                      30-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                 W09424565-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-OCT-1994
                                                                                                                                                                                   AAR62659;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            vaccines
                                                                                                                          AAR62659
```

AAR81941 standard; Protein; 504 AA.

RESULT 15 AAR81941 ID AAR8194

ð g

90US-0505611

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                 Hepatitis C virus (HCV) antigens can be used for detecting HCV infected sera and individuals infected with HCV. They can also be used in an anti-HCV vaccine or for the production of anti-HCV antibodies which can be used for passive immunoprophylaxis. The antigens consistently identify more HCV positive serum samples with a high degree of specificity. See AAQ98202-14 and AAR81939-51.
                                                                                                                          nucleic acids encoding hepatitis C virus antigens - used to slop prods. for detection of HCV-infected sera and prodn. of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 504;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 45; DB 16; 100.0%; Pred. No. 1.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                   Disclosure; Columns 57-60; 71pp; English.
                                                                                                                                                       develop prods. for detection of H vaccines and anti-HCV antibodies.
Reyes GR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9; Conservative
                                              WPI; 1995-302120/39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   504 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ILDSFDPLV 9
                                                                      N-PSDB; AA098204
```

23, Appl 23, Appl 23, Appl 3, Appl 3, Appli 3, Appli 124, App 1, Appli 10, Appli 10, Appli 10, Appli 36, Appli 3

sednence sed

US-08-466-975A-23 US-08-391-671A-23 US-09-275-265-23 US-08-443-260-3 US-08-443-900A-3 US-08-444-818-124 US-08-444-818-138 US-08-144-818-138 US-08-144-818-138 US-08-144-138-13 US-08-144-110 US-08-140-153-16 US-08-140-153-16

28894 28894 28894 28894 28955 28955 28955 28955 38911 38911 38911 38911 38911 38911

444444444444444 555556

ALIGNMENTS

```
August 23, 2002, 09:57:53; Search time 61.77 Seconds (without alignments) 3.559 Million cell updates/sec
                                                                                                                                                                                                                                                     231628
                                                                                                                                                                                                                                                                                                                                                                      4.5
Compugen Ltd.
                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                         231628 seqs, 24425594 residues
GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                    - protein search, using sw model
                                                                                                                                                                                   BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                US-08-854-825-42
45
                                                                                                                                                                                                                                                                           seq length: 0
seq length: 2000000000
                                                                                                                                                       1 ILDSFDPLV 9
                                                                                                                                Title:
Perfect score:
                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                              DB
DB
                                                    OM protein
                                                                                                                                                          Sequence:
                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                         Database
                                                                                                                                                                                                                                                                           Minimum
Maximum
                                                                             Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	Sequence 42, Appl	383,	383,	383,	103,		5, Ap	13,	104,	36, 1	12,	40,	17,	9' 5	9	9	Sequence 6, Appli	9	9	9	8	13,	Sequence 36, Appl	54,	,99	75,	89,
SUMMARIES	ID	US-08-214-650-42	US-08-146-028-383	US-08-723-425A-383	US-09-112-206-383	US-08-262-037-103	US-08-262-037-106	US-08-262-037-5	US-08-262-037-13	US-08-262-037-104	US-08-530-550-36	US-08-262-037-12	US-08-444-818-40	PCT-US94-04174-17	US-07-853-985A-6	US-07-681-703B-6	US-08-184-236-6	US-08-407-410B-6	US-08-485-500-6	PCT-US91-02370-6	PCT-US94-04174-6	US-08-867-611-8	PCT-US92-06965A-13	US-08-867-611-36	US-08-444-818-54	US-08-444-818-66	US-08-444-818-75	US-08-444-818-89
	ength DB	9 1	9	4	9 4	35 1		44 1		50 1	55 1	55 1	126 4	195 5	504 1	504 I	504 1	504 2	504 2	504 5	504 5	541 4	541 5	798 4	1786 4	2261 4	2436 4	2772 4
æ	Query Match Length	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Score	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45,	45	45	45
	Result No.	1	7	ю	4	S	9	7	œ	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

		o);
		Gaps
VIRUS		0;
n US/08214650 Francis V. ndreas FOR INDUCING CYTOTOXIC T LYMPHOCYTE RESPONSES TO HEPATITIS C	NUMBER OF SEQUENCES: 55 CORRESPORDENCE ADDRESS: 55 ADDRESSEE: Leydig, Voit & Mayer STREET: Two Prudential Plaza, Suite 4900 CITY: Chicago STREET: LEGICAGO STATE: LL COUNTRY: USA ZIP: G0601 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PAPELICATION DATE: COMPUTER: PAPELICATION DATE: FLING DATE: FLING DATE: CLASSIFICATION INFORMATION: NAME: Silvert, Donald J REGISTRENCE/ORGET NUMBER: 61230 TELECOMMUNICATION INFORMATION: TELEPAN: (312) 616-5600 TELEX: 25-353 INFORMATION FOR SEQ ID NO: 42: SEQUENCE CHARACTERISTICS: LENGTH: 9 amino acid STRANDEDNESS: single OM-COLOGY: UNKNOWN MOLECULE TYPE: peptide	Query Match 100.0%; Score 45; DB 1; Length 9; Best Local Similarity 100.0%; Pred. No. 1.7e+05; Matches 9; Conservative 0; Mismatches 0; Indels Qy 1 ILDSFDPLV 9

a

```
PROCESS FOR THE DETERMINATION OF PEPTIDES
CORRESPONDING TO IMMUNOLOGICALLY IMPORTANT EPITOPES AND THE
IN A PROCESS FOR DETERMINATION OF ANTIBODIES OR BIOTINYLATE
PEPTIDES CORRESPONDING TO IMMUNOLOGICALLY IMPORTANT EPITOPE
PROCESS FOR PREPARING THEM AND COMPOSITIONS CONTAINING THEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wang and Barbara Hosein
SYMTHETIC PEPTIDES SPECIFIC FOR
THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV
INFECTION AND PREVENTION THEREOF AS VACCINES
136
                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                      .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                       100.0%; Score 45; DB 4; Length 9; 100.0%; Pred. No. 1.7e+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25 (EPO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 45; DB 4; 100.0%; Pred. No. 1.7e+05;
                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/146,028
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/112,206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 383, Application US/09112206
Patent No. 6210903
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 103, Application US/08262037
Patent No. 5747239
GENERAL INFORMATION:
APPLICANT: Chang Yi Wang and Barb.
                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Floppy disk
  TELEPHONE: 703-816-4000
TELEFAX: 703-816-4100
INFORMATION FOR SEQ ID NO: 3
                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: DROC
TITLE OF INVENTION: IN A
TITLE OF INVENTION: PEPT
TITLE OF INVENTION: PROC
TITLE OF INVENTION: PROC
MUMBER OF SEQUENCES: 453
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy di
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 9 amino acids
                                                                                          9 amino acids
                                                                                                                                      single
                                                                                                                                                                               ; MOLECULE TYPE: peptide US-08-723-425A-383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; MOLECULE TYPE: peptide US-09-112-206-383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                               TYPE: amino acid
STRANDEDNESS: sir
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                       1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                             1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-112-206-383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-262-037-103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                          LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                       Dp
                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                PROCESS FOR THE DETERMINATION OF PEPTIDES
CORRESPONDING TO IMMUNOLOGICALLY IMPORTANT EPITOPES AND THEIR
IN A PROCESS FOR DETERMINATION OF ANTIBODIES OR BIOTINVLATED
PEPTIDES CORRESPONDING TO IMMUNOLOGICALLY IMPORTANT EPITOPES,
PROCESS FOR PREPARING THEM AND COMPOSITIONS CONTAINING THEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 383, Application US/08723425A
Patent No. 6165730
GENERAL INFORMATION:
APPLICANT: DELEYS, ROBERT
TITLE OF INVENTION: PROCESS FOR THE DETERMINATION OF
TITLE OF INVENTION: PEPTIDES CORRESPONDING TO IMMUNOLOGICALLY IMPORTANT
TITLE OF INVENTION: EPTIOPES AND THEIR USE IN A PROCESS FOR DETERMINATION OF
TITLE OF INVENTION: ANTIBODIES OR BIOTINYLATED PEPTIDES CORRESPONDING ...
NUMBER OF SEQUENCES: 453
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25 (EPO)
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/723,425A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 45; DB 2; 100.0%; Pred. No. 1.7e+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: NIXON & VANDERHYE, P.C.
1100 NORTH GLEBE ROAD, 8TH FLOOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/08/146,028
                                                                                                        Sequence 383, Application US/08146028
Patent No. 5891640
GENERAL INFORMATION:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: SADOFF, B.J.
REGISTRATION NUMBER: 36,663
REFERENCE/POCKET NUMBER: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                           MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US, INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                TITLE OF INVENTION: CORITILE OF INVENTION: CORITILE OF INVENTION: PROFITLE OF INVENTION: PROFITLE OF INVENTION: PROFITLE OF INVENTION: PROFITLE OF SEQUENCES: 45.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arlington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
ILDSFDPLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-723-425A-383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 22201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
STREET: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                RESULT 2
US-08-146-028-383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-146-028-383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
```

g ò

ö

OPERATING SYSTEM: PC-DOS/MS-DOS

```
US-08-262-037-5

Sequence 5, Application US/08262037

Sequence 5, Application US/08262037

Sequence 5, Application US/08262037

Patent No. 1547239

APPLICANT: Chang YI Wang and Barbara Hosein

TITLE OF INVENTION: SYNTHETIC PEPTIDES SPECIFIC FOR

TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES

NUMBER OF SEQUENCES: 136

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORGAN & FINNEGAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 45; DB 1; Length 35; 100.0%; Pred. No. 0.011; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                              29,323
:R: 1151-4043 US3
                                            SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: WORDPERFECT 5.1 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
                                                                                              CLASSIFICATION: 424
PRIOR APPLICATION DATA: 07/719,819
FILING DATE: 24-June-1991
APPLICATION NUMBER: 07/667,275
                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER: 1151
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-758-4800
TELERAX: (212) 751-6849
TELEX: 421792
INFORMATION FOR SEQ ID NO: 106:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLOPPY DISK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 35 amino acids TYPE: Amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: 345 PARK AVE. CITY: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM: MEDIUM TYPE: FLOPPY |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: NEW YORK STATE: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TOPOLOGY:
US-08-262-037-106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABOUT 106

Sequence 106, Application US/08262037

Sequence 106, Application US/08262037

Patent No. 5747239

GENERAL INFORMATION:
TITLE OF INVENTION: THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV
TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES

NUMBER OF SEQUENCES: 136

CORRESPONDENCE ADDRESS:
ADDRESSEE: MORGAN & FINNEGAN

STREET: 345 PARK AVE.

CITY: NEW YORK

SCHAME OF SECULATION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV

TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES

CORRESPONDENCE ADDRESS:
ADDRESSEE: MORGAN & FINNEGAN

STREET: 345 PARK AVE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 45; DB 1; Length 35; 100.0%; Pred. No. 0.011; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                       CLASSICIONI 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/719,819
FILING DATE: 24-June-1991
APPLICATION NUMBER: 07/667,275
FILING DATE: 11-Mar-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 07-Feb-1991
APPLICATION NUMBER: 07/558,799
FILING DATE: 26-July-1990
APPLICATION NUMBER: 07/510,153
FILING DATE: 16-April-1990
ATTORREY AGENT INFORMATION:
NAME: Maria C. H. Lin
REGISTRATION NUMBER: 29,323
REFERENCE/DOCKET NUMBER: 1151-4043 US3
TELECCOMMUNICATION INFORMATION:
                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY DISK
COMPUTER: IBM PC COMPATTBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
...DEE: MORGAN & FINNEGAN STREET: 345 PARK AVE. CITY: NEW YORK STATE: NEW YORK COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 10154
COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY DISK
COMPUTER: IBM PC COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEX: 421792
INFORMATION FOR SEQ ID NO: 103:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: 212-758-4800
TELEFAX: (212) 751-6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111111111
21 ILDSFDPLV 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-262-037-103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
```

ö

Gaps ; 0

```
Sequence 104, Application US/08262037

Sequence 104, Application US/08262037

Patent No. 5747239

GENERAL INFORMATION:

GENERAL INFORMATION:

TITLE OF INVENTION: THE DETECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV

TITLE OF INVENTION: INPECTION ND PREVENTION THEREOF AS VACCINES

NUMBER OF SEQUENCES: 136

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORGAN & FINNEGAN

STREET: 145 PARK AVE.

CITY: NEW YORK

STATE: NEW YORK
                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 45; DB 1; Length 47; 100.0%; Pred. No. 0.016;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
CLASSIFICATION 424
PRIOR APPLICATION 424
PRIOR APPLICATION DATE:
APPLICATION NUMBER: 07/719,819
FILING DATE: 24-June-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 11-Mar-1991
APPLICATION NUMBER: 07/558,799
FILING DATE: 26-July-1990
APPLICATION NUMBER: 07/510,153
FILING DATE: 16-April-1990
APPLICATION NUMBER: 10/710,153
FILING DATE: 16-April-1990
ATTORREY/AGENT INFORMATION:
NAME: Maria C. H. Lin
REGISTRATION NUMBER: 1151-4043 US3
REGISTRATION NUMBER: 1151-4043 US3
FELEPRAX: (212) 751-6849
TELEPRAX: (212) 751-6849
TELERY: 50 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
            REFERENCE/DOCKET NUMBER: 1151-4043 US3
TELECOMMUNICATION:
TELEPOMONICATION:
TELEPOMO: 212-758-4800
TELEFAX: (212) 751-6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WORDERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/262,037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CIP: 10154
COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY DISK
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-
                                                TELEFAX: (212,
TELEFAX: (212,
TELEFAX: 421792
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 47 amino acids
"vpE: Amino acids
"vpE: Amino acids
"vpE: Amino acids"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 50 amino acids
TYPE: Amino acid
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                             Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19 ILDSFDPLV 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-262-037-104
                                                                                                                                                                                                                                                              ; TOPOLOGY:
US-08-262-037-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 13, Application US/08262037

Patent No. 5747239

GENERAL INFORMATION:
APPLICANT: Chang YI Wang and Barbara Hosein
APPLICANT: Chang YI Wang and Barbara Bercific For
TITLE OF INVENTION: THE DETECTION OF ANTIBODIES TO HCV, DIACNOSIS OF HCV
TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES
NUMBER OF SEQUENCES: 136
CORRESPONDENCE ADDRESS:
ADDRESSEE: MORGAN & FINNEGAN
STREET: MAS PARK AVE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 45; DB 1; Length 44; 100.0%; Pred. No. 0.014;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
FILING DATE: 11-War-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 07-Feb-1991
APPLICATION NUMBER: 07/558,799
FILING DATE: 26-July-1990
APPLICATION NUMBER: 07/510,153
FILING DATE: 16-April-1990
ATTORNEY AGENT INFORMATION:
NAME: Maria C. H. Lin
REGISTRATION NUMBER: 129,323
REFERENCE/DOCKET NUMBER: 1151-4043 US3
TELEFONMUNICATION INFORMATION:
TELEFONMUNICATION INFORMATION:
TELEFONMUNICATION INFORMATION:
TELEFONMUNICATION INFORMATION:
TELEFONMUNICATION INFORMATION:
TELEFONMUNICATION OF 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 44 amino acids
TYPE: Amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:

COMPUTER READABLE FORM:

MEDIUM TYPE: FLOPPY DISK
COMPUTER: IBB PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WORDPERFECT 5.1

CURRENT APPLICATION DATA:
RPILICATION NUMBER: US/08/262,037
FILING DATE: 244

PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/667,275
FILING DATE: 11-MT-1991
APPLICATION NUMBER: 07/667,275
FILING DATE: 11-MT-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 10-MT-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 16-APL1990
APPLICATION NUMBER: 07/510
ATTORNEY/AGENT INFORMATION:
NAME: MARIA C. H. Lin
REGISTRATION NUMBER: 29,323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: NEW YORK STATE: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30 ILDSFDPLV 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TOPOLOGY:
US-08-262-037-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: NE COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-262-037-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

```
100.0%; Score 45; DB 1; Length 55; 100.0%; Pred. No. 0.019;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 12
US-08-44-818-40
; Sequence 40, Application US/08444818
; Sequence 0.6150087
; GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: MANBV Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1151-4043 US3
                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08/262,037 FILING DATE: CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/719,819
FILING DATE: 24-June-1991
APPLICATION NUMBER: 07/667,275
FILING DATE: 11-Mar-1991
APPLICATION NUMBER: 07/651,735
FILING DATE: 07-Feb-1991
APPLICATION NUMBER: 07/558,799
FILING DATE: 26-July-1990
APPLICATION NUMBER: 07/510,153
FILING DATE: 16-API-11990
APPLICATION NUMBER: 07/510,153
FILING DATE: 16-API-1-1990
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                MEDIUM TYPE: FLOPPY DISK
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
                                      ADDRESSEE: MORGAN & FINNEGAN
STREET: 345 PARK AVE.
CITY: NEW YORK
STATE: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29,323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 11
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE: 212-758-4800
TELEFAX: (212) 751-6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 55 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEX: 421792
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Maria C. H. Lin
REGISTRATION NUMBER: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9; Conservative
                     CORRESPONDENCE ADDRESS:
                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY
  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: Amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41 ILDSFDPLV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                         ZIP: 10154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TOPOLOGY:
US-08-262-037-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: C
                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 12, Application US/08262037
Patent No. 5747239
EARENL INFORMATION:
APPLICANT: Chang Yi Wang and Barbara Hosein
TITLE OF INVENTION: SYNTHETIC PEPTIDES SPECIFIC FOR
TITLE OF INVENTION: THE DEFECTION OF ANTIBODIES TO HCV, DIAGNOSIS OF HCV
TITLE OF INVENTION: INFECTION AND PREVENTION THEREOF AS VACCINES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                           100.0%; Score 45; DB 1; Length 50; 100.0%; Pred. No. 0.017; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Hosein, Barbara
APPLICANT: Wang, Chang Yi
TITLE OF INVENTION: Peptides Effective for Diagnosis and
TITLE OF INVENTION: Petection of Hepatitis c Infection
NUMBER OF SEQUENCES: 51
CORRESPONDENCE ADDRESS:
ADDRESSEE: ALLisa Wilson
STREET: 25 Davids Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 45; DB 1; Length 55; 100.0%; Pred. No. 0.019; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
ZIP: 11788
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/530,550
                                                                                                                                                                                                                                                                                                      Sequence 36, Application US/08530550 Patent No. 5736321 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTURNELL TOWN.

NAME: Wilson, M. Lisa
REGISTRATION NUMBER: 34,045
REFRENCE/DOCKET NUMBER: 20002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (516)273-2828
INFORMATION FOR SEQ ID NO: 36:
SEQUENCE CHARACTERISTICS:
LENGTH: 55 anino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 100...
Sec. 9; Conservative
                                                                             Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear
MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 530
Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hauppauge
NY
                                                                                                                                                                                    36 ILDSFDPLV 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41 ILDSFDPLV 49
                                                                                                                                                              1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
; TOPOLOGY:
US-08-262-037-104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 11
US-08-262-037-12
                                                                                                                                                                                                                                                                                     US-08-530-550-36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE:
                                                                                                                                                              õ
                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

Gaps

ö

; 0

```
Query Match 100.0%; Score 45; DB 5; Length 195; Best Local Similarity 100.0%; Pred. No. 0.084; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%; Score 45; DB 1; Length 504; Best Local Similarity 100.0%; Pred. No. 0.26; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                           : INDIVIDUAL ISOLATE: Clone 36-1 protein coding sequence PCT-US94-04174-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 6, Application US/07853985A
Patent No. 5436318
GENERAL INFORMATION
GENERAL TROPOMATION:
APPLICANT: Reyes, Gregory
APPLICANT: Momeckli, Randolph
TITLE OF INVENTION: Hepatitis C Virus Epitopes
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOCTWARE: PATENTIN PRICES #1.24
CURRENT APPLICATION DATA:
APPLICATION NOTHER: US/O7/853,985A
FILING DATE: 19920320
CLASSIFICATION 19435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/505,611
FILING DATE: 00-APR-1990
APPLICATION NUMBER: US 07/594,854
FILING DATE: 00-OCT-1990
ATTORNEY/AGENT INFORMATION:
NAME: Dehlinger, Peter J.
REGISTRATION NUMBER: 28,006
REFERENCE/DOCKET NUMBER: 28,006
REFERENCE/DOCKET NUMBER: 4600-0076.22
TELECOMMUNICATION INFORMATION:
MELEPHONE: 415-324-0880
                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Peter J. Dehlinger
STREET: P.O. BOX 60850
CITY: Palo Alto
STATE: CA
COUNTRY: US
ZIP: 94306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 415-324-0960 INFORMATION FOR SEQ ID NO: 6:
                MOLECULE TYPE: protein HYPOTHETICAL: NO FRAGMENT TYPE: N-terminal ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 504 amino acids
AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; MOLECULE TYPE: protein US-07-853-985A-6
linear
                                                                                                                                                                                                                                                                                                                          134 ILDSFDPLV 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133 ILDSFDPLV 141
                                                                                                                                                                                                                                                                                                  1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                     US-07-853-985A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 17, Application PC/TUS9404174
GENERAL INFORMATION:
APPLICANT: Reyes, Gregory
APPLICANT: Kim, Jungsuh P.
APPLICANT: Kim, Jungsuh P.
APPLICANT: Mockli, Randolph
TITLE OF INVENTION: HCV Immunodiagnostic Antigens and Antibodies
CORRESPONDENCE ADDRESS:
ADDRESSEE: Law Offices of Peter J. Dehlinger
STREET: 350 Cambridge Avenue, Suite 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 45; DB 4; Length 126; 100.0%; Pred. No. 0.05; ive 0; Mismatches 0; Indels
              SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/444,818
                                                                              FILING DATE:
CLASSIPICATION: 424
PROOF APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14 MAR-1995
ATORNEY/AGENT INFORMATION:
NAME: HATDIN, Allsa A.
REGISTRATION NUMBER: 33,895
REFERNCE/DOCKET NUMBER: 0110.002
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION SEQ ID NO: 40:
SEQUENCE CHARACTERISTICS:
LENGTH: 126 amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC COMPATIBLE
SOFTWARR: PATENTIN Release #1.24
CURRENT APPLICATION NUMBER: PCT/US94/04174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 505,611
FILING DATE: 06-APR-1990
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Fabian, Gary R.
REGISTRATION NUMBER: 33,875
REFERENCE/POCKET NUMBER: 46
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-124-0880
TELEFAX: 415-324-0960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 415-324-0960 INFORMATION FOR SEQ ID NO: 17: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  195 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 100.0
"Thea 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; MOLECULE TYPE: protein US-08-444-818-40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        53 ILDSFDPLV 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ర
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PCT-US94-04174-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: C
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

ö

Gaps

; 0

Search completed: August 23, 2002, 09:57:53
Job time: 203 sec

THIS PAGE BLANK (USPTO)

```
4.5
Compugen Ltd.
    GenCore version
Copyright (c) 1993 - 2000
```

OM protein - protein search, using sw model

August 23, Run on:

2002, 09:56:53; Search time 78.82 Seconds (without alignments) 10.972 Million cell updates/sec

US-08-854-825-42 Title: Perfect score:

1 ILDSFDPLV 9 Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

283138 segs, 96089334 residues Searched:

283138 Total number of hits satisfying chosen parameters:

length: 0 length: 2000000000 Minimum DB seq Maximum DB seq

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database

PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		æ			SUMMARIES	
Result No.	Score	Query	Length	DB	ID	Description
	45	100.0	693	7	E96705	hypothetical prote
7	45	100.0		Н	GNWVC3	\vdash
m	45	100.0		Н	GNWVCH	genome polyprotein
4	45	100.0		Н	S40770	
S	41	91.1		7	S10002	C8-2 protein - hep
9	41	91.1	103	7	S20763	7
7	41	91.1	173	~	PQ0251	polyprotein (clone
80	41	91.1	175	7	PQ0253	polyprotein (clone
6	41	91.1	182	7	PQ0252	polyprotein (clone
10	41	91.1	200	7	PQ0250	polyprotein (clone
11	41	91.1	3010	Н	A45573	genome polyprotein
12	41	91.1	3010	Н	GNWVTW	genome polyprotein
13	40	88.9		Н	GNWVTC	
14	39	86.7	3010	Н	GNWVCJ	genome polyprotein
15	37	82.2	153	7	PQ0255	polyprotein (clone
16	37		160	7	PQ0254	polyprotein (clone
17	37	82.2		~	PQ0248	polyprotein (clone
18	37			~	T46594	phytoene synthase
19	37		346	~	D84833	hypothetical prote
20	37			~	B84301	DNA primase [impor
21	37	82.2		7	T26216	
22	37			ď	T26215	hypothetical prote
23	37			-	S18030	qenome polyprotein
24	36		ю	Н	JQ1303	genome polyprotein
25	34	75.6	208	7	E84316	hypothetical prote
26	34	75.6		~	D84591	hypothetical prote
27	34	75.6		~	AG3214	cultivar specifici
28	34		354	7	F64325	aspartate-semialde
29	34	75.6		~	G72603	nitrate reductase

	hypothetical prote	phosphoinositide 3	hypothetical prote	hypothetical prote	albumin - dog (fra	probable membrane	AcOrf-51 protein -	ACMNPV orf51 - Bom	UDP-glucose 4-epim	XAA-PRO aminopepti	AAA family ATPase	probable 26S prote	hypothetical prote	cytochrome P450 93
T08156	A97415	T13801	н97868	E70653	146986	T11550	C72856	T41795	A84167	F82878	B90169	F72504	T25076	T05944
75	7 7	~	7	7	7	7	7	7	7	~	~	7	7	7
515	733	1876	96	137	265	278	318	319	328	357	393	409	452	521
75.6	75.6	75.6	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3
34	34	34	33	33	33	33	33	33	33	33	33	33	33	33
30	32	33	34	35	36	37	38	39	40	41	42	43	44	45

```
C;Dates Uz'Mai'-Z001 #Sequence_revision Uz'Mai'-Z001 #text_Cnange 517Mai'-Z001
C;Accession: E96705
R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alon Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, ansen, N.F.; Hughes, B.; Huizar, L.
Nature 408, 816-820, 200
A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, A;Authors: Hunter, J.L.; Schwartz, J.S.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marzia Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallo A;Reference number: A86141; MUID:21016719
A;Reterence number: A86141; MUID:21016719
A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Rosidues: 1-663 - CRTO>
A; Cross-references: GB: AE005173; NID: g6715731; PIDN: AAF26492.1; GSPDB: GN00141
C; Genetics:
A; Gene: T22E19.16
A; Map position: 1
hypothetical protein T22E19.16 [imported] - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 31-Mar-2001
```

Gaps ö 100.0%; Score 45; DB 2; Length 663; larity 100.0%; Pred. No. 0.96; Conservative 0; Mismatches 0; Indels Query Match Best Local Similarity Matches 9; Conserv

ö

1 ILDSFDPLV 9 δλ

384 ILDSFDPLV 392 g

genome polyprotein - hepatitis C virus (strain HCV-1)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C; Species: hepatitis C virus
C; Date: 30-56p-1992 #sequence_revision 30-5ep-1992 #text_change 19-Jan-2001
C; Accession: A39166; P00403; P00404
R; Choo, O.L.; Richman, K.H.; Han, J.H.; Berger, K.; Lee, C.; Dong, C.; Gallegos, C.;
Proc. Natl. Acad. Sci. U.S.A. 88, 2451-2455, 1991
A; Title: Genetic organization and diversity of the hepatitis C virus.
A; Reference number: A39166; MUID: 91172826

A;Molecule type: mRNA A;Residues: 1-3011 <CHO> A;Cross-references: GB:M62321; NID:g329873; PIDN:AAA45676.1; PID:g329874

~

ö

Gaps

.; 0

```
F;1316-1319/Region: DEXH motif
F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1663-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;204-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genome polyprotein - hepatitis C virus N:Contains: capsid protein C; envelope protein M: hepacivirin (EC 3.4.21.98) (nonstru protein NS4s, nonstructural protein NS4b; nonstructural protein NS5 C;Species: hepatitis C virus C;Species: hepatitis C virus C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001 C;Accession: S40770; PC1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: genomic RNA
A; Residues: 1-3011 (2012)
A; Residues: 1-3011 (2012)
A; Residues: 1-3011 (2012)
B; Cross-references: EMBL: D10749; NID: 9221586; PIDN: BAA01582.1; PID: 9221587
B; Okamoto, H.; Okada, S.; Sugiyama, Y.; Yotsumoto, S.; Tanaka, T.; Yoshizawa, H.; Tsu
Jpn. J. Exp. Med. 60, 167-177, 1990
A; Title: The S'-terminal sequence of the hepatitis C virus genome.
A; Reference number: PC1284; MUID: 91013116
A; Accession: PC1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R; Maeno, M.; Kaminaka, K.; Sugimoto, H.; Esumi, M.; Hayashi, N.; Komatsu, K.; Abe, Nucleic Acids Res. 18, 2685-2689, 1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Species: hepatitis C virus
C;Date: 31-Dec-1990 #sequence_revision 31-Dec-1990 #text_change 17-Nov-2000
C;Accession: S10002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;1316-1319/Region: DEXH motif
F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A:
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B:
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
                                                                                                                                                                                                                                                                                                           100.0%; Score 45; DB 1; Length 3011; larity 100.0%; Pred. No. 5.4; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 45; DB 1; Length 3011; 100.0%; Pred. No. 5.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Okamoto, H.
submitted to the EMBL Data Library, March 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S10002
C8-2 protein - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: S40770
A; Accession: S40770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2252 ILDSFDPLV 2260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2252 ILDSFDPLV 2260
                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ILDSFDPLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ILDSFDPLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S40770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                            A Status: preliminary
A Molecule type: genomic RNA
E Molecule type: genomic RNA
E Molecule: genomic RNA
E Molecule
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A Note: neither amino acid nor nucleotide sequence is given

(Superfamily: hepatitis C virus genome polyprotein

(Superfamily: hepatitis C virus genome polyprotein

(Superfamily: hepatitis C virus genome polyprotein

(Skeywords: ATP; capsid protein; envelope protein; glycoprotein; hydrolase; nonstructural

(Fil6-191/Product: capsid protein C #status predicted <CPC>

(Fil6-191/Product: major envelope protein E #status predicted <MEE>

(Fil6-191/Product: nonstructural protein NS1 #status predicted <NS1>

(Fil6-191/Product: nonstructural protein NS2 #status predicted <NS2>

(Fil07-1615/Product: nonstructural protein NS2 #status predicted <NS2>

(Fil07-1615/Product: nonstructural protein NS2 #status predicted <NS2>

(Fil1230-1231/Region: nucleotide-binding motif A (P-loop))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genome polyprotein - hepatitis C virus (strain H)

M.Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu protein NS4s in monstructural protein NS5s in monstructural protein NS5s in monstructural protein NS5s in partials C virus

A.Note: host Homo sapiens (man)

C. Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001

C. Accession: A36814; A41546

R. Inchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.

A. Description: Genomic structure of the human prototype strain H of hepatitis C virus: C A. Reference number: A36814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2077,22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A.Cross-references: GB.M67463; NID:g329737; PIDN:AAA45534.1; PID:g329738
R.Inchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
Proc. Natl. Acad. Sci. U.S.A. 88, 10292-10296, 1991
A.Title: Genomic structure of the human prototype strain H of hepatitis C virus: compari A; Reference number: A1546; MUID:92052256
A; Contents: annotation
    E.; Yap, P.
                                                                                          t
t
                                                                             A; Title: Analysis of a new hepatitis C virus type and its phylogenetic relationship A; Reference number: PQ0393; WUID:92268871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
    B.; Peutherer, J.F.; Follett,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 45; DB 1; Length 3011; 100.0%; Pred. No. 5.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 5.4
0; Mismatches
    Dow,
S.W.; McOmish, F.; Holmes, E.C.;
Virol. 73, 1131-1141, 1992
                                                                                                                                                                                                                                                                                                                                                             A; Experimental source: isolates E-b16
                                                                                                                                                                                                                                                                                                           A; Cross-references: DDBJ:D10128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                A; Molecule type: genomic RNA A; Residues: 1577-1633 <CHA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: A36814
A; Molecule type: genomic RNA
A; Residues: 1-3011 <INC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2252 ILDSFDPLV 2260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ILDSFDPLV 9
                                                                                                                                                                       A; Accession: PQ0403
                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: PQ0404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
```

se

Υ.

ö

Gaps

; 0

```
Polyprotein (clone 2248) - hepatitis C virus (isolate 22) (fragment)
C; Species: hepatitis C virus
C; Species: hepatitis C virus
C; Species: nepatitis C virus
C; Species: nepatitis C virus
C; Species: 31 Mar-1992 #sequence_revision 31-Mar-1992 #text_change 17-Nov-2000
C; Accession: PQ025 | 1991
B; Oshima, M.; Tsuchiya, M.; Yagasaki, M.; Orita, T.; Hasegawa, M.; Tomonoh, K.; Kojim J; Gen. Virol. 72, 2805-2809, 1991
A; Title: cDNA Aclones of Japanese hepatitis C virus genomes derived from a single pati A; Reference number: PQ0255 MJUD:92044457
A; Reference number: PQ0252
A; Molecule type: genomic RNA
A; Residues: 1-182 <OSH>
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: polyprotein
                                            polyprotein (clone 2220) - hepatitis C virus (isolate 22) (fragment)
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Species: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 17-Nov-2000
C;Accession: PQ0253
R;Oshima, M.; Tsuchiya, M.; Yagasaki, M.; Orita, T.; Hasegawa, M.; Tomonoh, K.; Kojim J. Gen. Virol. 72, 2805-2809, 1991
A;Title: CDNA clones of Japanese hepatitis C virus genomes derived from a single pati A;Reference number: PQ0245; MUID:92044457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C,Accession: P00250
R;Oshima, M.; Tsuchiya, M.; Yaqasaki, M.; Orita, T.; Hasegawa, M.; Tomonoh, K.; Kojim J. Gen. Virol. 72, 2805-2809, 1991
A;Title: cDNA clones of Japanese hepatitis C virus genomes derived from a single pati A;Reference number: P00245; MUID:92044457
A;Accession: P00250
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polyprotein (clone 2206) - hepatitis C virus (isolate 22) (fragment)
C;Species: hepatitis C virus
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                               Length 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                  A;Molecule type: genomic RNA
A;Residues: 1-175 COSSH>
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: genomic RNA
A; Residues: 1-200 COSSH>
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91.1%; Score 41; DB 2;
100.0%; Pred. No. 1.3;
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                             DB 2;
1.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91.1%; Score 41; DB 2; 100.0%; Pred. No. 1.5; tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                           91.1%; Scor.
100.0%; Pred. No. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100.(
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                              8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133 ILDSFDPL 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133 ILDSFDPL 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
PQ0250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N.Alternate names: protein NS5
C; Species: hepatitis C virus
C; Accession: $20763
R; Murakawa, K.; Esumi, M.; Kato, K.; Kambara, H.; Shikata, T.
R; Murakawa, K.; Esumi, M.; Kato, K.; Kambara, H.; Shikata, T.
R; Bubnitted to the BMBL Data Library, May 1991
A; Reference number: $20763
A; Reference number: $20763
A; Residues: T-103 < AUR>
A; Residues: 1-103 < AUR>
A; Residues: EMBL: X59609; NID: 959488; PIDN: CAA42171.1; PID: 959489
A; Cross-references: EMBL: X59609; Virus genome polyprotein
C; Keywords: nonstructural protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rioshima, M.; Tsuchiya, M.; Yagasaki, M.; Orita, T.; Hasegawa, M.; Tomonoh, K.; Kojima, J. Gen. Virol. 72, 2805-2809, 1991
A; Fitle: CDNA clones of Japanese hepatitis C virus genomes derived from a single patient A; Reference number: PQ0245; MUID:92044457
A; Accession: PQ0251
                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polyprotein (clone 2258) - hepatitis C virus (isolate 22) (fragment)
C;Species: hepatitis C virus
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 17-Nov-2000
C;Accession: PQ0251
                                            A.Accession: $10002
A.Molecule type: DNA
A.Residues: 1-89 <AME>
A.Cross-references: EMBL:X51587; NID:960687; PIDN:CAA35937.1; PID:9930250
C.Superfamily: hepatitis C virus genome polyprotein
                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
A;Title: A cDNA clone closely associated with non-A, non-B hepatitis.
A;Reference number: $10002; MUID:90251443
A;Accession: $10002
                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 173;
                                                                                                                                                                                                                   Length 89;
                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nonstructural protein 5 - hepatitis C virus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Residues: 1-173 <OSH>
C;Superfamily: hepatitis C virus genome polyprotein
C;Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91.1%; Score 41; DB 2;
100.0%; Pred. No. 1.3;
iive 0; Mismatches
                                                                                                                                                                                                                Score 41; DB 2;
Pred. No. 0.59;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
0.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 41; DB 2; Pred. No. 0.7; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91.1%; Scc.
100.0%; Pre
0; )
                                                                                                                                                                                                                                                                  .;
0
                                                                                                                                                                                                                   91.1%; S
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 100...
B; Conservative
                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: genomic RNA A; Residues: 1-173 <OSH>
                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 8; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        133 ILDSFDPL 140
                                                                                                                                                                                                                                                                                                                                       76 ILDSFDPL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91 ILDSFDPL 98
                                                                                                                                                                                                                                                                                                              1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
A. Accession: A38465
A. Molecule type: genomic RNA
A. Residues: 1-3010 < TAKA
A. Cross-references: EMBL:M58335; NID:g329770; PIDN:AAA72945.1; PID:g329771
C. Superfamily: hepatitis C virus genome polyprotein
C. Superfamily: hepatitis C will be a protein
C. Superfamily: hepatitis C will be a protein
C. Superfamily: hydrolase; nonstructural
C. Superfamily: hepatitis C will be a protein
C. Superfamily: hepatitis C will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstruprotein NS4a; nonstructural protein NS4b; nonstructural protein NS5 C;Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Takamizawa, A.; Mori, C.; Fuke, I.; Manabe, S.; Murakami, S.; Fujita, J.; Onishi, E J. Virol. 65, IIO5-III3, 1991
A;Title: Structure and organization of the hepatitis C virus genome isolated from hum A;Reference number: A38465; MUID:91140698
                                                                                                                                                                                                                                 F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,233,234,250,305,325,417,423,430,448,532,540,556,576,623,645,1213,1255,2041,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Species: hepatitis c virus
C;Date: 30-Jun-1992 #text_change 19-Jan-2001
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 19-Jan-2001
C;Accession: A;39253; PS0086
R;Kato, N.; Hijikata, M.; Ootsuyama, Y.; Nakagawa, M.; Ohkoshi, S.; Sugimura, T.; Shi Proc. Natl. Acad. Sci. U.S.A. 87, 9524-9528, 1990
A;Title: Molecular cloning of the human hepatitis C virus genome from Japanese patien A;Reference number: A;99253; MUID:9108856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;1616-1862/Product: nonstructural protein NS4a #status predicted <NAA>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <NAB>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,325,417,423,430,448,532,540,556,576,623,645,1213,1255,2041,2077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genome polyprotein - hepatitis C virus (strain J)
N:Contains: capsid protein C; envelope protein M; major envelope protein E;
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C; Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
           F;1007-1615/Product: hepacivirin #status predicted <NS3>
F;1230-1237/Region: nucleotide-binding motif A (P-loop)
F;1312-1317/Region: nucleotide-binding motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 40; DB 1
Pred. No. 51;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91.1%; Score 41; DB 100.0%; Pred. No. 32; Live 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genome polyprotein - hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 88.9%;
Best Local Similarity 87.5%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match
Best Local Similarity 100. والمرابعة المرابعة المرابع
                                                                                                                      F;1312-1317/Region: nucleotide F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2252 ILDSFDPL 2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                :|||||||
2252 VLDSFDPL 2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C; Accession: A38465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 ILDSFDPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Note: sequence extracted from NCBI backbone (NCBIN:106206, NCBIP:106207)

Superfamily: hepatitis C virus genome polyprotein
C.Superfamily: hepatitis C virus genome polyprotein
C.Superfamily: hepatitis C virus genome polyprotein
C.Superfamily: hepatitis C virus genome polyprotein
C.Steywords: ATP: glycoprotein; hydrolase; nuclectide dending; P-loop; polyprotein; serin
F.2-115/Product: capsid protein C #status predicted <CPC>
F:116-191/Product: major envelope protein E #status predicted <NED>
F:192-394/Product: major envelope protein NSI #status predicted <NSI>
F:1007-1015/Product: nonstructural protein NSI #status predicted <NSI>
F:1007-1015/Product: nonstructural protein NSI #status predicted <NSI>
F:1310-1237/Region: nucleotide-binding motif A (P-loop)
F:1312-1317/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Across references: GB: M84754
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; dlycoprotein; hydrolase; nonstructura
C; Keywords: ATP; capsid protein; envelope protein; glycoprotein; hydrolase; nonstructura
F; 1-115/Product: capsid protein C #status predicted <CPC>
F; 192-389/Product: major envelope protein E #status predicted <MEE>
F; 390-729/Product: nonstructural protein NS2 #status predicted <NS2>
F; 730-1006/Product: nonstructural protein NS2 #status predicted <NS2>
                                                                                                                                                                                                                                                                                                                                                                                                genome polyprotein - hepatitis C virus (strain JT)
N.Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genome polyprotein - hepatitis C virus (strain Taiwan)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Tanaka, T.; Kato, N.; Nakagawa, M.; Ootsuyama, Y.; Cho, M.J.; Nakazawa, T.; Hijikata, Virus Res. 23, 39-53, 1992
Virus Res. 23, 39-53, 1992
A;Title: Molecular cloning of hepatitis C virus genome from a single Japanese carrier:
A;Reference number: A45573; MUID:92295714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-3010 <7AN>
A;Cross-references: GB:DD11168; GB:DD1171; NID:9221612; PIDN:BAA01943.1; PID:9221613
A;Experimental source: HCV-JT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
C;Accession: A45573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C.Species: hepatitis C virus
A;Note: host Homo sapiens (man)
C:Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 91.1%; Score 41; DB 1; Length 3010;
100.0%; Pred. No. 32;
iive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133 ILDSFDPL 140
œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C; Accession: A40244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: A45573
     1 ILDSFDPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ILDSFDPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                          g
à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

ö

```
A; Accession: A39253
A; Molecule type: genomic RNA
A; Roberle type: genomic RNA
A; Roberle type: genomic RNA
A; Rosidues: 1-3010 - KARA
A; Cross-references: GB: D90208; NID: 9221610; PIDN: BAA14233.1; PID: 9221611
R; Kato, N; Ohkoshi, S; Shimorobhoo, K.
Proc. Jpn. Acad. 659, 219-223, 1989
A; Title: Japanese isolates of the non-A, non-B hepatitis viral genome show sequence variance number: P80086
A; Reference number: P80086
A; Reference number: P80086
A; Molecule type: genomic RNA
A; Residues: 2650-2707 *KAZ>
A; Experimental source: Japanese isolate
C; Comment: The cleavage sites of this polyprotein have not been determined.
C; Superfamily: plycoprotein; hydrolase; nucleotided copc.
C; Comment: The cleavage sites of this polyprotein binding; P-loop; polyprotein; C; Superfamily: plycoprotein; hydrolase; nucleotided copc.
C; Superfamily: plycopuct: nonstructural protein NS1 *status predicted <NS2>
F; 130-1307/Region: nucleotide-binding motif B
F; 1310-1317/Region: nucleotide-binding motif B
F; 1310-1317/Region: nucleotide-binding motif B
F; 1310-1317/Region: nucleotide-binding motif B
F; 1616-1862/Product: nonstructural protein NS4 *status predicted <NA>
F; 1663-2013/Product: nonstructural protein NS4 *status predicted <NA>
F; 1663-2013/Product: nonstructural protein NS5 *status predicted <NS5>
F; 1607-1615/Product: nonstructural protein NS5 *status predicted <NS5>
F; 166, 209, 234, 250, 305, 325, 417, 423, 430, 448, 532, 556, 576, 623, 645, 1213, 12077, 2240, 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polyprotein (clone 2211) - hepatitis C virus (isolate 22) (fragment)
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Accession: P00255
R;Oshima, M.; Tsuchiya, M.; Yagasaki, M.; Orita, T.; Hasegawa, M.; Tomonoh, K.; Kojima, J. Gen. Virol. 72, 2805-2809, 1991
A;Title: cDNA clones of Japanese hepatitis C virus genomes derived from a single patient A;Reference number: P00245; MUID:92044457
A;Accession: P00255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 39; DB 1; Length 3010;
Pred. No. 80;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 37; DB 2; Length 153;
Pred. No. 6.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: genomic RNA
A; Residues: 1-153 COSH>
C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Search completed: August 23, 2002, 09:56:55 Job time: 145 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             86.7%;
87.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 82.2%;
Best Local Similarity 87.5%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 87.5
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ||||||||
2252 ILDSFDPI 2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ||||||:||
||ILDSFEPL 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pp
```

	,		Φ,
			£

us-08-854-825-42.rsp

```
GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

Run on:

August 23, 2002, 09:55:27; Search time 37 Seconds (without alignments) 9.418 Million cell updates/sec

US-08-854-825-42 45 1 ILDSFDPLV 9 Title: Perfect score: Sequence:

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

105224 Total number of hits satisfying chosen parameters: 105224 seqs, 38719550 residues Searched:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_40:* Database : Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	otion	de	h genome po	h genome po	ď	ᄓ	h genome	ha		methan		picea	picea ruben	oryctolagus				homo sapien	solanum tub	canis famil	infectious	mus musculu	bacillus sp	guillardia		archaeoglob		neisseria	neisseria m		homo sapien	bacteriopha	dolichos la	schizosacch
	Description	999	P27958	000269	P29846	P26663	P26662	09hpu3	P26660	057658	063070	063072	063071	P49065	P42361	Q9u1h8	P41455	P78413	006355	P49822	P22173	Q920h1		m	006491	029052	050939	P56996	033395	_	09uk45	349	86	010322
S																																		
SUMMARIES	ID	POLG_HCV1	POLG_HCVH	POLG_HCVJT	POLG_HCVTW	POLG_HCVBK	POLG_HCVJA	PRIM_HALN1	POLG_HCVJ6	DHAS_METJA	MATK_PICGL	- 1	MATK_PICRU	ALBU_RABIT	P29K_STRGC	FAC2_DROME	Y051_NPVAC	IRX4_HUMAN	PPOB_SOLTU	ALBU_CANFA	RRPO_IPNVJ	UGR1_MOUSE	MSOX_BACSN	YC44_GUITH	GATA_BACSU	SYK_ARCFU	UVRB_NEIGO	UVRB_NEIMA	UVRB_NEIMB	SM1A_TRICF	LSM7_HUMAN	VD14_BPT5	LECA_DOLLA	DMA1_SCHPO
	DB	7	Н	~	_	_	7	П	-	٦		-	-	Н			 1	۲.,	-1	,		-	-	-	7	-	_	7	Н	Н	-		_	Н
	Length	3011	3011	3010	3010	3010	3010	424	3033	354	515	515	515	608	278	290	318	519	588	608	845	139	387	414	485	493	675	675	675	712	103	160	237	267
œ	Query	100.0	100.0	91.1	91.1	88.9	86.7	82.2	80.0	75.6	75.6	75.6	75.6	75.6	73.3	73.3	73.3	73.3	73.3	73.3	73.3	71.1	71.1	71.1	71.1	71.1	~ 71.1	71.1	71.1	71.1	68.8	68.9	68.9	68.9
	Score	45	45	41	41	40	39	37	36	34	34	34	34	34	33	33	33	33	33	33	33	32	32	32	32	32	N	32	32	32	31	31	31	31
	Result No.	1	7	m	4	S	9	7	œ	o	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Q50759 m coenzyme Q10181 schizosacch	~ =	013803 schizosacch 059647 methanobact	21 01	P32744 caenorhabdi P40872 bacillus su	P15192 pinus sylve Q9xh44 nicotiana t	
HMD_METTL YAW6_SCHPO	RFA1_CRIFA SYT_MYCGE	YE06_SCHPO	RA25_YEAST DPO1_SYNY3	YNH6_CAEEL PKSM_BACSU	CB22_PINSY CET1_TOBAC	
		~ ~			- 1 -1	
353 453	467 564	601 668	843 986	1063 4273	150 174	
68.9	68.9 68.9	68.9 68.9	68.9 68.9	68.9 68.9	66.7	
31	31 31	31 31	31 31	31	30	
34 35	36 37	38 8 6 8 7	40 41	42	44 45	

ALIGNMENTS

RESULT POLG_HCV1
--

3011 AA.

STANDARD;

```
LINCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.

-!- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.

-!- FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF NS3-NS4A, NA4A-NS4A, NA5A-NS5A AND NS5A-NS5B.

-!- FUNCTION: NS4A FORMS A COMPLEX WITH NS3 AND IS ESSENTIAL FOR THE ACTIVATION OF NS3.

-!- FUNCTION: NS5A SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.

-!- FUNCTION: NS5A SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.

-!- FUNCTION: NS5A SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.

-!- FUNCTION: NS5A SEEMS TO HAVE A TRANSCRIPTIONAL ACTIVATORY ROLE.

-!- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thi In Pl and Ser or Ala in Pl'.

-!- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEGCAPSID COVERED BY A LIPOPROTEIN BUVELODPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: EL CATALYTIC ACTIVATORY OF THIS VIRUS IS A NUCLEGCAPSID CONFINENT OF THIS DEPORTED BY A LIPOPROTEIN BUVELODPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: EL CATALYTIC ACTIVATORY OF THIS NUCLEOCAPSID IS A COMPLEX OF PROPERING DATA.
                                                                  01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7: Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (Isolate H) (RC4).
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657.
MEDLINE-98154321; PubMed=9493270;
Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A.,
Murcko M.A., Lin C., Caron P.R.;
"Hepatitis C virus NS3 RNA helicase domain with a bound
oligonucleotide: the crystal structure provides insights into the mode
of unwinding.";
Structure 6:89-100(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Yao N., Hesson T., Cable M., Hong Z., Kwong A.D., Le H.V., Weber P.C.; "Structure of the hepatitis C virus RNA helicase domain.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Genomic structure of the human prototype strain H of hepatitis C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- PTM: THE STRUCTURAL PROTEINS C, E1 AND E2 ARE PRODUCED BY PROTEOLYTIC PROCESSING BY THE HOST SIGNAL PEPTIOASES.
-!- SIMILARITY: THE NS2 PROTEASE BELONGS TO PEPTIDASE FAMILY C18.
-!- SIMILARITY: THE NS3 PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDLINE-92052256; PubMed-1658800;
Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasoff M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      virus: comparison with American and Japanese isolates.";
Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657. MEDLINE=97331322; PubMed=9187654;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nat. Struct. Biol. 4:463-467(1997).
                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=11108;
                                                                                                                                                                                                                                                                                                                                    Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Prince A.M.
           POLG_HCVH
                                   Interpro; truster interpro; truster interpro; truster interpro; predict interpro; predict interpro; predict interpro; predict interpro; predict interpredict interpretation interpredict interpretation interpretation interpredict interpretation interpr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAPSID PROTEIN ( POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSI/E2 (POTENTIAL).
PROTENTIAL).
PROTENTIAL).
PROTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65F8C9447FCE5AF9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATP (POTENTIAL)
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
InterPro; IPR001490; HCV_NS4b.
InterPro; IPR002869; HCV_NS5a.
InterPro; IPR00252; HCV_Capsid.
InterPro; IPR00252; HCV_capsid.
InterPro; IPR00251; HCV_core.
INTERPRO; IPR001551; HCV_core.
InterPro; IPR001650; Helicase.C.
Pfam; PP01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     327197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2077 207
2240 224
2364 236
2789 278
3011 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACT_SITE
ACT_SITE
NP_BIND
SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                        the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/aunounce/
                                                                                                                                                                                                                                              or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                               EMBL; M67463; AAA45534.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                        PDB; 1HEI; 25 NOV-98.
PDB; 1A1V; 16-FEB-99.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                              PIR; A36814; GNWVCH
                                                                                                                                                                                                                                                   ;
0
```

Gaps

; 0

Indels

.; 0

0; Mismatches

9; Conservative

Query Match Best Local Similarity Matches 9; Conserv

2252 ILDSFDPLV 2260

a

1 ILDSFDPLV 9

õ

100.0%; Score 45; DB 1; Length 3011; 100.0%; Pred. No. 2;

RESULT

3

```
Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL). (POTENTIAL). (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY)
SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REMOVED FROM CAPSID PROTEIN C CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROTEASE/HELICASE NS3.
NONSTRUCTURAL PROTEIN NS4A.
NONSTRUCTURAL PROTEIN NS4B.
NONSTRUCTURAL PROTEIN NS5B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    772CBB29CCD94753 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NONSTRUCTURAL PROTEIN NS2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENVELOPE GLYCOPROTEIN E1 ENVELOPE GLYCOPROTEIN E2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (BY
(BY
(BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAPSID PROTEIN C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROTEIN P7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
                                                                                  InterPro; IPR004109; HCV_NS3.
InterPro; IPR000145; HCV_NS4a.
InterPro; IPR001409; HCV_NS4b.
InterPro; IPR002868; HCV_NS5b.
InterPro; IPR002522; HCV_Capsid.
InterPro; IPR002523; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_core.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                                                     Figure Proj. 170/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 | 100/1000 
                                HCV_NS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    327142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART; SM00492; HELICC3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196
209
234
305
417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     165
IPR001410; I
IPR002531; I
IPR002518; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             476
532
540
556
556
576
623
645
3011 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             347
1083
1107
1165
1230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196
209
203
305
417
423
448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3D-structure
                                InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
     STITITITITE STATES TO THE STATES TO STATE STATES AND STATES STATE
```

```
Gaps
                       ö
100.0%; Score 45; DB 1; Length 3011; 100.0%; Pred. No. 2;
                       Indels
                       ;
0
                      0; Mismatches
                      Conservative
             Best Local Similarity
                     9,
Query Match
                     Matches
```

```
;
0
                                 11111111
2252 ILDSFDPLV 2260
                     1 ILDSFDPLV 9
```

q

ò

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profilt institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                         A Tanaka T., Kato N., Nagawa M., Ootsuyama Y., Cho M.J.,
A Tanaka T., Kato N., Nagawa M., Ootsuyama Y., Cho M.J.,
A Nakazawa T., Hijikata M., Ishimura Y., Shimotohno K.;
Molecular cloning of hepatitis C virus genome from a single Japanese
T carrier: sequence variation within the same individual and among
T infected individuals.",
Virus Res. 23:39-53(1992)
L Virus Res. 23:39-53(1992)
L VIRUS RES. 23:39-53(1992)
C --- CUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE
HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
C --- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral
precursor polyprotein, commonly with Asp or Glu in the P6
position, Cys or Th: N Hydrolysis of four peptide bonds in the viral
C --- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLECCARSID COVERED BY A
C LIPOPROTEIN ENVELOPE THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN C AND MRNA.
                                                             01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 26, Last sequence update)
01-APR-1993 (Rel. 40, Last annoctation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (N81); Protease/helicase A33 (P70) (Hepacivirin)
(EC 3.4.22.-); Protease/helicase A33 (P70) (Hepacivirin)
(EC 3.4.22.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate HC-077) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -:- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                   PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                              MEDLINE=92295714; PubMed=1318627;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV_NS5a.
HCV_RdRP.
HCV_capsid.
HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pro; IPR002519; HCV_env.
Pro; IPR001650; Helicase_C.
PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; D11168; BAA01943.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV_core; 1
HCV_env; 1.
HCV_NS1; 1.
HCV_NS2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HCV_NS3; 1
HCV_NS4a; 1
HCV_NS4b; 1
                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IPR000745;
IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR002522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPR002521;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR004109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR002868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; A45573; A45573.
HSSP; P26663; 1JXP.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                            NCBI_TaxID=31642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PF01006;
PF01001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PF01542;
                                                                                                                                                                                                                                                                             Hepacivirus.
                                  POLG_HCVJT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro
RESULT 3
POLG_HCVJT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ofam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fam;
```

```
Hepacivirus
       CAPSID PROTEIN (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 25, Last sequence update)
01-APR-1993 (Rel. 40, Last annotation update)
Genome polyprotein (Contains Copies)
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2 (GP68) (GP70) (MS1); Protein P7: Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS4B (P57); Nonstructural protein NS5A (P56); Nonstructural protein NS5B (P66); CP37); Nonstructural protein NS5B (P65); P70) (RMA-directed RMA polymerase) (EC 2.7.7.48)].
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00998; HCV_RdRP; 1.
Pfam; PF00271; helicase_C; 1.
Probom; PD166062; HELICG3; 1.
SMART; SM00492; HELICG3; 1.
POlyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Broelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.
INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                    CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                         POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .,
                                                                                                                                                                                                                                                                                              POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                           POTENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99.1%; Score 41; DB 1; Length 3010; 100.0%; Pred. No. 12; ive 0; Mismatches 0; Indels
                                                                                                     CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94A1C77435D642BB
                                                                                                                                                                                                                                                                                  N-LINKED GLCNAC.
                                                                                                                                                                                                                                                                          N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                     ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT; 3010 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       326573 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best_Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1111111
2252 ILDSFDPL 2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVTW
P29846;
                                                                                                                                                                                                                    ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                          ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                           TRANSMEM
                                                                                                                         CHAIN
                                                                                                                                            CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                CHAIN
                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 4
POLG_HCVTW
     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
```

```
### 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                             WINCLOGY 188:102-113(1992)

-1- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHORIC. SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

-1- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.

-1- SUBUNIT: THE VIRION OF THIS VIRRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
                                                                                                                                                                              Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.; "The Taiwanese hepatitis C virus genome: sequence determination and mapping the 5' termini of viral genomic and antigenomic RNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                  PubMed=1314449;
                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                  MEDLINE-92230206;
NCBI_TaxID=31645;
```

us-08-854-825-42.rsp

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-40G-1992 (Rel. 23, Created)
01-40G-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains Contains Contains)
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (N81); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RMa-ddirected RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate BNS) (HC90)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDILINE-91140698; PubMed-1847440;
Takamizawa A., Mori C., Fuke I., Manabe S., Murakami S., Fujita J.,
Onishi E., Andoh T., Yoshida I., Okayama H.;
"Structure and organization of the hepatitis C virus genome isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                     SIMILARITY).
SIMILARITY).
      SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Borowski P., Heiland M., Oehlmann K., Becker B., Korneteky L.;
"Non-structural protein 3 of hepatitis C virus inhibits
phosphorylation mediated by CAMP-dependent protein kinase.";
Eur. J. Biochem. 237:6611-618(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91.1%; Score 41; DB 1; Length 3010; 100.0%; Pred. No. 12; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAD267D55CDFE215 CRC64;
   (BY
(BY
(BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     K-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS) OF 1027-1215
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC.
                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GLCNAC
                                                                                                  (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT; 3010 AA.
                                                                                                                                                            N-LINKED
N-L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 1487-1500.
MEDLINE=96235224; PubMed=8647104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              327047 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from human carriers.";
J. Virol. 65:1105-1113(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2252 ILDSFDPL 2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepacivirus.
NCBI_TaxID=11105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POLG_HCVBK
P26663;
                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
CARBOHYD
ACT_SITE
ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POLG_HCVBK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAGE STATE OF THE STATE OF THE
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                   **NEAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1027-1210 AND 1678-1691.

**MEDLINE=9827846; PubMed=9568891;

**NEDLINE=98277846; PubMed=9568891;

**Year v. 11 Y., Wunshi S., Sardana V.,

**Steinkuehler C., Tomei L., de Francesco R., Kuo L.C., Chen Z.;

"Complex of NS3 protease and NS4 peptide of BK strain hepatitis C.

"vivus: a 2.7-A resolution structure in a hexagonal crystal form.";

"protein Sci. 7:837-847(1998).

"I. Protein Sci. 7:837-847(1998).

"I. FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE

"PURDAPPOBLIC, SUGGESTING A POSSIBLE MEMBRARE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

"C -1- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pl and Ser or Ala in Pl'.

"LIPOPROTEIN ENVELOPE: THE ENVELOPE CONSISTS OF TWO PROTEINS:

"ROUGHLY THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
               Love R.A., Parge H.E., Wickersham J.A., Hostomsky Z., Habuka N., Moomaw E.W., Adachi T., Hostomska Z.; "The crystal structure of hepatitis C virus NS3 proteinase reveals a trypsin-like fold and a structural zinc binding site."; Cell 87:331-342(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Envelope protein; Helicase; ATP-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Soat protein; Envelope protein; Helicase; ATP-bindi
Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REMOVED FROM CAPSID PROTEIN C BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
MEDLINE-97015088; PubMed-8861916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HCV_NS5a.
HCV_RdRP.
HCV_capsid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HCV_core.
HCV_env.
Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_capsid; 1. Pfam; PF01542; HCV_capsid; 1. Pfam; PF01550; HCV_capv; 1. Pfam; PF01560; HCV_NS1; 1. Pfam; PF01006; HCV_NS3; 1. Pfam; PF01006; HCV_NS4; 1. Pfam; PF01506; HCV_NS4; 1. Pfam; PF01506; HCV_NS5a; 1. Pfam; PF00998; HCV_RGAP; 1. Pfam; PF00951; helicase_C; 1. ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HCV_NS3.
HCV_NS4a.
HCV_NS4b.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M58335; AAA72945.1; -. PIR; A38465; GNWVTC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR004109; H
InterPro; IPR000745; H
InterPro; IPR001490; H
InterPro; IPR002689; H
InterPro; IPR002166; H
InterPro; IPR002166; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1A10; 25-MAR-98.
1JXP; 14-JAN-98.
1NS3; 08-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR001650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Core protein; Coat
Transmembrane; Nons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEROPS; S29.001; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            \begin{array}{c} 1 \\ 116 \end{array}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3D-structure.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
```

ဖ

```
ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
66-OCT-2001 (Rel. 40, Last annotation update)
67-0CT-2001 (Rel. 40, Last annotation update)
67-0CT-2001 (Rel. 40, Last annotation update)
67-0CT-2001 (NSI); Protein El (GP32) (GP35); Envelope glycoprotein El (GP68) (GP70) (NSI); Protease/helicase NS3 (P70) (Hepacivirin)
67-0CT-2001 (NSI); Protease/helicase NS3 (P70) (Hepacivirin)
68-0CT-2001 (NSI); Nonstructural protein NS4A (P4); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P66) (P70) (RNA-directed NA Pollymerase) (EC 2.7.7.48)].
68-0CT-2001 (NSI); Nonstructural protein NS5A (P56); Nonstruct
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                   (POTENTIAL).
                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                  POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-91088550; PubMed-2175903;
Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi S., Sugimura T., Shimotohno K.;
Wolecular cloning of the human hepatitis C virus genome from Japanese patients with non-A, non-B hepatitis.";
Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1; Length 3010;
18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENKED (GLCNAC. . . . F8422D5ECCFDFD9C
                                                                                                                                                      CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
                                                                                                                                                                                                                                                   N-LINED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                     ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                        POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 40;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2788
; 327189 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISCUSSION OF SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2077 207
2240 224
2529 252
2788 278
3010 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :1111111
2252 VLDSFDPL 2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVJA
P26662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepacivirus
                                                                                                                                                                          ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                    TRANSMEM
                                                                                                                                                        ACT_SITE
                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                          CHAIN
CHAIN
CHAIN
                                      CHAIN
                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POLG_HCVJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
  ŏ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                       the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
           Kato N., Hijikata M., Nakagawa M., Ootsuyama Y., Muraiso K.,
A Ohkoshi S., Shimotohno K.;

"Molecular structure of the Japanese hepatitis C viral genome.";
FEBS Lett. 280:325-328 (1991).

"PEBS Lett. 280:325-328 (1994).

"PEBS Lett. 280:325-328 (1995).

"AND NS4A AND NS4B AND NS4B AND NS4B AND NS4B AND NS3 AND NS5 AND PLAY A ROLE IN THE VIRAL RNA REPLICATION.

"NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

"I- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pl and Ser or Ala in Pl'.

"I- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPPORPOTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROPIEIN S: PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SMART; SM00492; HELIC3; 1.

We Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Goat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

TCHAIN 115 CAPSID PROTEIN C BY THE CELLULAR ANINOPEPTIABLS.

TCHAIN 116 191 MATRIX PROTEIN (POTENTIAL).

TCHAIN 192 383 MAJOR ENVELOPE PROTEIN NS. (POTENTIAL).

TCHAIN 730 1006 NON-STRUCTURAL PROTEIN NS. (POTENTIAL).

TCHAIN 1007 1615 PROTEASE/HELICASE NS.3 (POTENTIAL).

TCHAIN 1615 NONSTRUCTURAL PROTEIN NS.4 (POTENTIAL).

TCHAIN 1615 NONSTRUCTURAL PROTEIN NS.4 (POTENTIAL).

TCHAIN 1863 2013 NONSTRUCTURAL PROTEIN NS.4 (POTENTIAL).

TCHAIN 1863 2013 RNA-DIRECTED NNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SYSTEM (BY SIMILARITY)
SYSTEM (BY SIMILARITY)
SYSTEM (BY SIMILARITY)
                                                                                                                                                                                                                                                                   -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHARGE RELAY S
CHARGE RELAY S
CHARGE RELAY S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPRO02531; HCV_NSI.
InterPro; IPR002531; HCV_NSI.
InterPro; IPR004109; HCV_NS3.
InterPro; IPR00145; HCV_NS4.
InterPro; IPR00149; HCV_NS4b.
InterPro; IPR00266; HCV_NS5b.
InterPro; IPR002521; HCV_NS5b.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_capsid.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core.
InterPro; IPR002519; HCV_core.
MEDLINE=91192160; PubMed=1849488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; D90208; BAA14233.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115
191
383
729
1006
11615
11862
2013
3010
369
11083
11107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; A39253; GNWVCJ.
HSSP; P26663; lJXP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEROPS; S29.001; -. MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACT_SITE
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
```

```
MEDLINE-20504483; PubMed=11016950;

M WW.Y. Kennedy S.P., Mahairas G.G., Berquist B., Pan M.,

M W.V., Kennedy S.P., Mahairas G.G., Berquist B., Pan M.,

Shukla H.D., Lasky S.R., Baliga N.S., Thorson V., Sbrogna J.,

Shukla H.D., Lasky S.R., Baliga N.S., Thorson V., Sbrogna J.,

Mathauser B., Keller K., Cruz R., Danson M.J., Hough D.W.,

Maddocks D.G., Jablonski P.E., Krebs M.P., Angewine C.M., Dale H.,

Na Isenbarger T.A., Peck R.F., Pohlschroder M., Spudich J.L., Jung K.-H.,

Alam M., Freitas T., Hou S., Daniels C.J., Dennis P.P., Omer A.D.,

Rebhardt H., Lowe T.M., Liang P., Riley M., Hood L., DasSarma S.;

T. Genome sequence of Halobacterium species NRC-1.*;

Proc. Natl. Acad. Sci. U.S.A. 97:12176-12181(2000).

C. PUNCTION: DNA PRIMAES IS THE POLYMERASE THAT SYNTHESIES SMALL RNA

PRIMARS FOR THE OKAZAKI FRAGNENTS ON BOTH TEMPLATE STRANDS AT

REPLICATION FORKS DURING CHROMOSOMAL DNA SYNTHESIS (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    une European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                         (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                               (POTENTIAL).
                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                  (POTENTIAL)
                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY: BELONGS TO THE EUKARYOTIC PRIMASE SMALL SUBUNIT FAMILY.
                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                DB 1; Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Halobacterium sp. (strain NRC-1).
Archaea; Euryarchaeota; Halobacteriales; Halobacteriaceae;
                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                         (GLCNAC. . .)
(GLCNAC. . .)
(GLCNAC. . .)
                                                                                                                                              (GLCNAC...)
                                                                                                                                                                          (GLCNAC. . .)
                                                                                                                                                                                                                                             (GLCNAC. . .)
                                                                  (GLCNAC. . .)
                                                                                                                                                                                                     (GLCNAC. . .)
                                                                                                                                                                                                                                                                      MW; AA993794F46DB185
                                                                                            (GLCNAC.
                                                                                                                                                                                                                  (GLCNAC.
                                                                               (GLCNAC.
                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-0CT-2001 (Rel. 40, Last sequence update)
16-0CT-2001 (Rel. 40, Last annotation update)
Putative DNA primase (EC 2.7.7.-).
 ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                Score 39;
Pred. No.
                                                   N-LINKED
                                                                                                                                                                                                                                           N-LINKED
N-LINKED
                          N-LINKED
                                       N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIM_HALN1 STANDARD; F 09HPU3; 16-OCT-2001 (Rel. 40, Created)
                                                                                                                                                                                                                                                                                                              86.7%;
87.5%;
                                                                                                                                                                                                                                                                        327017
                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
7; Conserva
                                                                                                                                                                                                                                                                           AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                    1111111:
2252 ILDSFDPI 2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=64091;
                                                                                                                                 2240
2788
3010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                    1 ILDSFDPL 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRI OR VNG1470G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Halobacterium
                                                                                         CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                               CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                       CARBOHYD
CARBOHYD
            SITE
CARBOHYD
                                                               CARBOHYD
                                       CARBOHYD
                                                    CARBOHYD
                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                               CARBOHYD
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIM_HALN1
                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                               쇰
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                            01-707 (1927) (Rel. 23, Latt sequence update)
16-077-2001 (Rel. 40, Last annotation update)
16-077-2001 (Rel. 40, Last annotation update)
6enome polyprotein [Contains: Capsid protein C (Core protein (P22);
6nvelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3. 4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3. 4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3. 4.21.98); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P65) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate HC-J6) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
MEDLINE-92044440; PubMed=1658196;
Okamoto H., Okada S.-I., Sugiyama Y., Kurai K., Lizuka H.,
Machida A., Miyakawa Y., Mayumi M.;
"Nucleotide sequence of the genomic RNA of hepatitis C virus isolated from a human carrier: comparison with reported isolates for conserved
                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY $29.
                                                                                                                                                                                                 Length 424;
                                                                                                                                                                                                                                1; Indels
                                                                                                                                      POTENTIAL.
946BDEF096E1DCAD CRC64;
                                                                        Hypothetical protein, Transferase, DNA replication, DNA-directed RNA polymerase, Primosome, Metal-binding,
                                                                                                                                                                                                Score 37; DB 1;
Pred. No. 8;
                                                                                                                                                                                                                                                                                                                                                                    PRT; 3033 AA.
                                                                                                                                                                                                                                0; Mismatches
                                                                                                                      POTENTIAL
            InterPro; IPR002755; DNA_primase_S.
InterPro; IPR003583; HHH_1.
Pfam; PF01896; DNA_primase_S; 1.
SMART; SM00278; HHH1; HH11; I.
                                                                                                                                                                                                                                                                                                                                                                                              01-AUG-1992 (Rel. 23, Created)
                                                                                                                                                    424 AA; 47174 MW;
                                                                                                                                                                                                82.2%;
87.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; D00944; BAA00792.1; -. PIR; JQ1303. JQ1303. HSSP; P27958; IHEI. MEROPS; S29.001; -.
EMBL; AE005062; AAG19774.1;
                                                                                                                                                                                                                                7; Conservative
                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                         Complete proteome.
                                                                                                                                                                                                                                                                              360 LDDFDPLV 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=11113;
                                                                                                                                                                                                                                                            2 LDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                 POLG_HCVJ6
P26660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepacivirus
                                                                                                                    ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                      POLG_HCVJ6
q
                                                                                                                                                                                                                                                                                                                                                                                   Qγ
```

```
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS! (POTENTIAL).
PRONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; APP-binding; Transmembrane; Nonstructural Envelope; Hydrolase; Serine protease: INIT_MBT 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY).
SIMILARITY).
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INKED (GLCNAC. . .) (POT
F957F5C1A273BE9E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
CHARGE RELAY SYSTEM (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                 MEMORY: USBOOTH OF THE COLOR OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF01542; HCV_COTE; 1.
Pfam; PF01539; HCV_COTE; 1.
Pfam; PF015539; HCV_MS1; 1.
Pfam; PF01558; HCV_MS2; 1.
Pfam; PF01000; HCV_MS3; 1.
Pfam; PF01000; HCV_MS4s; 1.
Pfam; PF01001; HCV_MS4s; 1.
Pfam; PF01001; HCV_MS4s; 1.
Pfam; PF01506; HCV_MSS8; 1.
Pfam; PF01506; HCV_MSS8; 1.
Pfam; PF01571; helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF01543; HCV_capsid; 1.
Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProDom; PD186062; HCV_NS1; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               329165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1111
1169
1241
1323
196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2038 203
2811 281
3033 AA;
MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCHAIN
CCHAIN
CHAIN
CHAIN
CCHAIN
CCAIN
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
DOR WENT THE FETT THE
```

```
Query Match
Bost Local Similarity 66.7%; Pred. No. 1.1e+02;
Matches 6; Conservative 2; Mismatches 1; Indels 0; Gaps 0;
```

:111 |1:1 2252 VLDSLDPMV 2260

g ç

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.lsb-sib.ch/announce/or send an email to license@ib-sib.ch). ö Oxidoreductase; NADP; Methionine biosynthesis; Threonine biosynthesis; Amino-acid biosynthesis; Complete proteome.
ACT_SITE 157
SEQUENCE 354 AA; 39439 WW; SC412CAC39B166E CRC64; STRAIN-JAL-1, DSW 2661 / ATCC 43067;

STRAIN-JAL-1, DSW 2661 / ATCC 43067;

BUL C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,

Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,

Sutton G.G., Blake J.A., FirzGerald L.M., Clayton R.A., Gocayne J.D.,

Kerlavage A.R., Dougherty B.A., Tomb J.F., Adams M.D., Reich C.I.,

Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,

Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D.,

Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C.,

Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M.,

Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.;

"Complete genome sequence of the methanogenic archaeon, Methanococcus Gaps NADP(+) = L-4-aspartyl phosphate + NADPH.
-!- PATHWAY: METHIONINE BIOSYNTHESIS, THREONINE BIOSYNTHESIS.
-!- SIMILARITY: BELONGS TO THE ASPARTATE-SEMIALDEHYDE DEHYDROGENASE -:- FUNCTION: THIS ENZYME CATALYZES THE SECOND STEP IN THE COMMON METABOLIC PATHWAY TO SYNTHESIZE THR AND MET FROM ASPARTIC ACID. ; 0 75.6%; Score 34; DB 1; Length 354; 62.5%; Pred. No. 25; Methanococcus jannaschii. Archaea; Euryarchaeota; Methanococcales; Methanococcaceae; 1; Indels 01-NOV-1997 (Rel. 35, Last sequence update) 16-OCT-2001 (Rel. 40, Last annotation update) Aspartate-semialdehyde dehydrogenase (EC 1.2.1.11) (ASA 515 AA. Pred. No. 25; 2; Mismatches InterPro: IPR000319; Asp_semiald_dh. InterPro: IPR000534; Semialdh_dh. Pfam: PF01118; Semialdhyde_dh; 1. Pfam: PF02774; Semialdhyde_dh; 1. PROSITE: PS01103; ASD; 1. PRT; (Rel. 35, Created) EMBL; U67476; AAB98189.1; -. Science 273:1058-1073(1996) Query Match Best Local Similarity 62.5. STANDARD; STANDARD; dehydrogenase) (ASADH). ::| |||| 270 VMDKFDPL 277 NCBI_TaxID=2190; 1 ILDSFDPL 8 ASD OR MJ0205. Methanococcus FIGR; MJ0205; 01-NOV-1997 DHAS_METJA Q57658; annaschii. MATK_PICGL ID MATK_PICGL AC 063070; FAMILY RESULT 9
DHAS_METJA RESULT 10 ρp δ

```
Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Picea
                                                                                                                                INTRONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MATK_PICRU
063071;
                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 12
MATK_PICRU
δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                        Germano J., Klein A.S.;
"Distribution of sequence variation in the chloroplast trnk intron and rp13-psaJ-trnP intergenic spacers within and between Picea rubens, plica mariana and Picea glauca: potential molecular markers for species-specific identification.";
Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                       SIMILARITY: WITH CORRESPONDING ORF IN OTHER PLANT CHLOROPLASTS, AND REGIONS OF SIMILARITY TO MATURASE-LIKE POLYPEPTIDES ENCODED BY MITOCHONDRIAL INTRONS.
                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Picea.
NCBL_TaxID=3330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                    Theor. Appl. Genet. 99:37-49(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                         SEQUENCE FROM N.A. Germano J., Klein A.S.; Species-specific nuclear and chloroplast single nucleotide polymorphisms to distinguish Picea glauca, P. mariana and P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 34; DB 1; Length 515;
Pred. No. 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB1A8F2123E92917 CRC64;
      15-DEC-1998 (Rel. 37, Last Sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
Probable intron maturase (Maturase K).
MATK OR YCF14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             515 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Probable intron maturase (Maturase K).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000442; Intron_maturse2.
InterPro; IPR002866; MatK_N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF01348; Intron_maturas2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AF059341; AAC14708.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chloroplast; mRNA processing.
SEQUENCE 515 AA; 60916 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF133923; AAD21649.1; -. AF133924; AAD21650.1; -.
(Rel. 37, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; AF133925; AAD21651.1; -.
EMBL; AF133926; AAD21652.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75.68;
66.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Picea mariana (Black spruce)
                                                        Picea glauca (White spruce)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF01824; MatK_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | | |||:|
356 ITDEFDPIV 364
                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MATK OR YCF14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chloroplast.
                                                                     Chloroplast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MATK_PICMA
063072;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MATK_PICMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ilsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                        Germano J., Klein A.S.; \mbox{\sc "Distribution of sequence variation in the chloroplast trnK intron and <math display="inline">\mbox{\sc "Distribution of sequence}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Germano J., Klein A.S.;
"Distribution of sequence variation in the chloroplast trnK intron and "Distribution of sequence vapacers within and between Picea rubens, Picea mariana and Picea glauca: potential molecular markers for species-specific identification.";
Submitted (ARR-1998) to the EMBL/Genbank/DDBJ databases.
:-FUNCTION: PROBABLY ASSISTS IN SPLICING CHLOROPLAST GROUP II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: WITH CORRESPONDING ORF IN OTHER PLANT CHLOROPLASTS, AND REGIONS OF SIMILARITY TO MATURASE-LIKE POLYPEPTIDES ENCODED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -i- SIMILARITY: WITH CORRESPONDING ORF IN OTHER PLANT CHLOROPLASTS, AND REGIONS OF SIMILARITY TO MATURASE-LIKE POLYPEPTIDES ENCODED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Picea.
NCBI_TaxID=3333;
                                                                                                                                                                                                                                              GROUP II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                      rpl33-psaJ-trnP intergenic spacers within and between Picea Picea mariana and Picea glauca: potential molecular markers species-specific identification.";
Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6DAA84436C433F99 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
Probable intron maturase (Maturase K)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 34; DB 1
Pred. No. 38;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    515 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR000442; Intron_maturse2.
InterPro; IPR012866; Matk.N.
Pfam; PF01348; Intron_maturas2; 1.
Pfam; PF01824; Matk.N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60951 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BY MITOCHONDRIAL INTRONS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AF059343; AAC14710.1; -
                                                                                                                                                                                                                                                                                                                                                                                             BY MITOCHONDRIAL INTRONS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chloroplast; mRNA processing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Picea rubens (Red spruce).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    356 ITDEFDPIV 364
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MATK OR YCF14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chloroplast.
```

```
TRANSMEM
TRANSMEM
TRANSMEM
TRANSMEM
                                                             DISULFID
                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                      RESULT 14
P29K_STRGC
  δ
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                              use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                            Oryctolagus cuniculus (Rabbit).
Washaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
NCBI_TaxID=9986;
                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Plasma; Metal-binding; Lipid-binding; Albumin; Repeat; Signal;
                                                                                                                      Score 34; DB 1; Length 515;
Pred. No. 38;
1; Mismatches 2; Indels
                                                                                              60951 MW; 001E940678127A89 CRC64;
                                                                                                                                                                                                                                01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BY SIMILARITY.
BY SIMILARITY.
SERUM ALBUMIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                              STRAIN-NEW ZEALAND WHITE; TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR000442; Intron_maturse2.
InterPro; IPR002866; MatK_N.
                                                                    Pfam; PF01348; Intron_maturas2; 1. Pfam; PF01824; MatK_N; 1.
                                          EMBL; AF059342; AAC14709.1; -.
                                                                                     Chloroplast; mRNA processing.
SEQUENCE 515 AA; 60951 MW;
                                                                                                                       75.68;
                                                                                                                                       Conservative
                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                            Serum albumin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18
24
608
202
394
                                                                                                           Query Match
Best Local Similarity
6; Conserv?
                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                        356 ITDEFDPIV 364
                                                                                                                                                        1 ILDSFDPLV 9
                                                                                                                                                                                                                  ALBU_RABIT
P49065;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copper.
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROPEP
                                                                                                                                                                                                  RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                           ALBU_RABIT
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-95012638; PubMed=7927711; MEDLINE-95012638; PubMed=7927711; Kolenbrander P.E., Andersen R.N., Ganeshkumar N.; Kolenbrander P.E., Andersen R.N., Ganeshkumar N.; Mucleotide sequence of the Streptococcus gordonii PK488 coaggregation adhesin gene, scaA, and ATP-binding cassette."; Infect. Immun. 62:4469-4480[1994]. -: SUBCELLULAR LOCATION: Integral membrane protein (Probable). -: SIMILARITY: BELONGS TO THE ABC-3 SUBFAMILY OF INTEGRAL MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P42361;
01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-MAR-2002 (Rel. 41, Last annotation update)
29 kDa membrane protein in psaA 5'region (ORF1).
Streptococcus gordonii Challis.
Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
                                                                                                                                                                                                                                                                                                                                                                   o;
                                                                                                                                                                                                                                                                                                                                     DB 1; Length 608; 46;
                                                                                                                                                                                                                                                                                                                                                                   2; Indels
                                                                                                                                                                                                                                                                                           CF5E92647AAFE9A2 CRC64;
                                                                         SIMILARITY
                                  SIMILARITY
SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                              SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                       Score 34;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.
   68914 MW;
                                                                                                                                                                                                                                                                                                                                     75.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; L11577; AAA71946.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001626; ABC-3.
Pfam; PF00950; ABC-3; 1.
                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 66.77
For 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transport
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38
60
60
1114
154
413
27
77
77
99
99
1114
1148
1148
1302
3302
3302
416
461
461
500
538
608 AA,
                                                                                                                                                                                                                                                                                                                                                                                                                 :11 | 111
397 VLDEFOPLV 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=29390;
                                                                                                                                                                                                                                                                                                                                                                                                 1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROTEINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P29K_STRGC
P42361;
                                                                                                                      DISULFID
DISULFID
DISULFID
DISULFID
                                                                                                                                                                                 DISULFID
DISULFID
DISULFID
                  METAL
DISULFID
                                               DISULFID
                                                                             DISULFID
                                                                                                                                                                                                                             DISULFID
                                                                                                                                                                                                                                                           DISULFID
```

```
Search completed: August 23, 2002, 09:55:29 Job time: 59 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REDILEBERGELEY
RA Adams N.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
Adams N.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
Adams N.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chan L.X.,
Brandon R.C., Rogers Y.-H.C., Blazel R.G., Champe M., Pfeiffer B.D.,
RA Man K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Adpayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Bersoon K.Y., Benos P.V., Berman B.P., Bhandari D., Bolbhakov S.,
RA Bersoon K.Y., Benos P.V., Berman B.P., Bhandari D., Bolbhakov S.,
RA Burtis K.C., Busam D.A., Bulter H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
A Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Barris M., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
Alasko P., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Wein M.-H., Ibegwam C.,
Alalish M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
Alasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Merkulov G., Milshina N.Y., Mobarty C., Morris J., Wolfer S., Shen H.,
Ralazzon M., Pittman G.S., Palazdi J., Warskern D.R., Pacler F., Shen H.,
Ralazzon M., Pittman G.S., Palazdi J., Smith T.,
Shier E., Spradling A.C., Stapleton M., Skupski M.P., Smith T.,
RA Shue B.C., Siden-Kamos I., Simpson M., Skupski M.P., Smith T.,
RA Shier E., Spradling A.C., Turner R., Venter E., Wang A.H., Wang X.,
Rang Z.T., Wassarman D.A., Weinstock G.M., Wally S.,
                                                                                                                                                                .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                               16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
CAAX prenyl protease 2 (EC 3.4.22.-) (Prenyl protein-specific
endoprotease 2) (Farnesylated-proteins converting enzyme 2) (FACE-2)
(Severas protein).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Weinzierl-Hinum A., Toeroek I., Kiss I., Farkas R., Mechler B.M.;
                                                                                                                                                                ó
                                                                                                                      1; Length 278;
                                                                                                                                                              1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases
                                     POTENTIAL.
47C1117C97DE084C CRC64;
                                                                                                                      Score 33; DB
Pred. No. 30;
                                                                                                                                                                2; Mismatches
  POTENTIAL. POTENTIAL.
216 PC
242 PC
266 PC
29705 MW;
                                                                                                                        73.3%;
66.7%;
                                                                                                                      Query Match 73.3
Best Local Similarity 66.7
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                 STANDARD;
  196 2
222 2
246 2
278 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                           :| |||||:
158 LLTSFDPLL 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tumour suppressor
                                                                                                                                                                                                    1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                    Q9VRM4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-BERKELEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SRAS OR CG4852
                                                                                                                                                                                                                                                                                                                                         FAC2_DROME
Q9U1H8; Q9V
                    TRANSMEM
TRANSMEM
  TRANSMEM
                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                        RESULT 15
FAC2_DROME
                                                                                                                                                                                                                                           g
    FFFS
                                                                                                                                                                                                    ð
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A., Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L., Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Smith H.O., Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;

"The genome sequence of Drosophila melanogaster.";
                                                                                                                                                                                                  OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                         -i- FUNCTION: PROTEOLYTICALLY REMOVES THE C-TERMINAL THREE RESIDUES
-range of the protein of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transmembrane; Endoplasmic reticulum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 33; DB 1; Length 290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157CAAA5B30693A8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KL -> NV (IN REF. 1).
I -> M (IN REF. 1).
D -> H (IN REF. 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AJ252068; CAB64383.1; -. EMBL; AE003565; AAF50770.2; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Μ.
Έ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73.38;
77.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FlyBace; FBgn0029121; Sras.
InterPro; IPR003675; Abi.
Pfam; PF02517; Abi; 1.
Hydrolase; Thiol protease; 1
                                                                                                                                                                 Science 287:2185-2195(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            33082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            290 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sest Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160 ILQSFSPLV 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
52
92
159
200
224
256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QQ
```

FFri

```
ö
 hepatitis hepatitis
                                                                                                                                                                                                                                                                                                                                     Lusida M.I., Nagano-Friji M., Nidom C.A., Soetjipto, Handajani R., Fujita T., Oka K., Hotta H.; "Correlation between Mutations in the Interferon Sensitivity-Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus Subtypes 1b, 1c, and 2a."; J. Clin. Microbiol. 39:3858-3864(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                   Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
       009e3d9
009e3d4
009e3d4
009e3d4
009e3d6
                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                       Length 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                            66
7360 MW; 8D9CCD3453391865 CRC64;
                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 45; DB 12;
100.0%; Pred. No. 0.088;
ive 0; Mismatches 0;
                                                                                                                                                                                                            ALIGNMENTS
095350
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
095300
                                                                                                                                              Q9E3B8
Q9E3B7
Q9E3B6
Q9E3B5
Q9E3B3
Q9E3B3
                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                              [1]
SEQUENCE FROM N.A.
STRAIN-SAMPLE NO.201;
MEDLINE-21538940; Pubmed=11682498;
                                                                                                                                                                                                                                                        1 (TrEMBLrel. 19, (TrEMBLrel. 19, I (TrEMBLrel. 19, I (FRAGMENT).
Q910B5;
01-DEC-2001 (TrEMBLrel. 1
01-DEC-2001 (TrEMBLrel. 1
01-DEC-2001 (TrEMBLrel. 1
POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 100.

Best Local Similarity 100.

Matches 9; Conservative
                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                           448
                                                                                                                                                                                                                                                                                                                                                                                                   66 AA;
                                                                                                                                                                                                                                                                                               Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ILDSFDPLV 52
ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                             99
                   NON_TER
NON_TER
SEQUENCE
Q91DB5
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                              44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
Q91DB4
RESULT
                                                                                                                                                                                                                                      091DB5
                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                    Q91db5 hepatitis c
Q91db2 hepatitis c
Q91db1 hepatitis c
Q91db1 hepatitis c
Q91da9 hepatitis c
Q91da8 hepatitis c
Q91da7 hepatitis c
Q91da7 hepatitis c
Q91da7 hepatitis c
Q91da3 hepatitis c
Q91da3 hepatitis c
Q91sd7 hepatitis c
Q91sd7 hepatitis c
Q91sd7 hepatitis c
Q99sc3 hepatitis c
Q96sc3 hepatitis c
Q96sc3 hepatitis c
                                                  (without alignments)
11.135 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                            August 23, 2002, 10:22:01; Search time 139.83 Seconds
                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                  562222
     GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                    562222 seqs, 172994929 residues
                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                summaries

    protein search, using sw model

                                                                                                BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                     091DB5
091DB4
091DB1
091DB0
091DB0
091DA8
091DA8
091DA6
091DA6
091DA3
091DA3
091DA3
091DA3
091DA3
091DA3
                                                                                                                                                                                                   sp_archea:*
sp_bacteria:*
sp_fung1:*
sp_tuman:*
sp_invertebrate:*
sp_mammal:*
                                                                                                                                                                                                                                                                                          sp_unclassified:*
                                                                                                                                                                                                                                                                            sp_virus:*
sp_vertebrate:*
                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 su
                                                                                                                                                                                                                                                                                                sp_rvirus:*
sp_bacteriap:*
                                                                                                                                                                                                                                            sp_mhc:*
sp_organelle:*
sp_phage:*
                                                                                                                                               seq length: 0 seq length: 2000000000
                                                                       US-08-854-825-42
                                                                                                                                                                                                                                                              sp_plant:*
sp_rodent:*
                                                                                                                                                                                                                                                                                                              sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                       1 ILDSFDPLV 9
                                                                                                                                                                                              SPTREMBL_19:*
                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                      Query
Match
                                                                                                                                                                                                                                                                                                                                                                                     Perfect score:
                                                                                                                                                                                                                                                                                                                                                                         Score
                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                               Minimum DB
Maximum DB
                                OM protein
                                                                                    Sequence:
                                                                                                                     Searched:
                                                                                                                                                                                              Database
                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                  Result
No.
```

```
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         111111111
44 ILDSFDPLV 52
                                                                                                                                                                                             NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q91DB0
Q91DB0;
                     Q91DB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q91DB0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
STRAIN-SAMPLE NO.50;
MEDLINE-21538940; PubMed-11682498;
MEDLINE-21538940; PubMed-11682498;
Lusida M.I., Nagano-Fujii M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Hotta H.;
Fujita T., and Za.;
Fujita T., and Za.;
Fujita T., AB056541;
Fujita T., AB056541;
Fujita T., oka K., Alika T., Fujita T., Fujit
                                                                                                                                                                                                                         STRAIN-SARINE NO.11N;
MEDLINE-21538940; PubMed-11682498;
MEDLINE-21538940; PubMed-11682498;
MEDLINE-21538940; PubMed-11682498;
MEDLINE-21538940; PubMed-11682498;
Correlation between Mutations in the Interferon Sensitivity-
Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus
Subtypes 1b, 1c, and 2a.";
Clin. Microbiol. 39:3858-3864(2001).
EMBL; AB056539; BAB63171.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                               Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
100.0%; Score 45; DB 12; Length 66;
Best Local Similarity 100.0%; Pred. No. 0.088;
Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 45; DB 12; Length 66; 100.0%; Pred. No. 0.088; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                             66 AA; 7422 MW; 84A6DE1D6939187B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66 AA; 7346 MW; 2D9DCC34533919A3 CRC64;
                                   (TrEMBLrel. 19, Created)
(TrEMBLrel. 19, Last sequence update)
(TrEMBLrel. 19, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              091DB2 PRELIMINARY; PRT; 66 AA.
091DB2;
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
Hepathis C virus.
 66 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ouery Match 100.

Best Local Similarity 100.

Matches 9; Conservative
PRELIMINARY;
                                 01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                             SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID-11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                       NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q91DB2
 g
```

RESULT

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
SERAIN-SAMPLE NO.330;
STRAIN-SAMPLE NO.330;
MEDLINE-21538940; PubMed-11682498;
Lusida M.I., Nagano-Fuljii M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Hotta H.;
"Correlation between Mutations in the Interferon Sensitivity-
Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus
Subtypes 1b, 1c, and 2a.";
J. Clin. Microbiol. 39:3858-3864(2001).
EMBL: AB055642; BAB63174.1;
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN=SAMPLE NO.130;
MEDLINE=21538940; Pubbed=11682498;
MEDLINE=21538940; Nagano-Fujii M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Hotta H.;
"Correlation between Mutations in the Interferon Sensitivity-
Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus
Subtypes 1b, 1c, and 2a.";
J. Clin. Mcrobiol. 39:3858-3864(2001).
EMBL; AB056543; BAB63175.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                             01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
Viruses: SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
Viruses: SSRNA positive-strand viruses.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 45; DB 12; Length 66; 100.0%; Pred. No. 0.088; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66 AA; 7346 MW; 2D9DCC34533919A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66 AA; 7346 MW; 2D9DCC34533919A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
66 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last seq.
01-DEC-2001 (TrEMBLrel. 19, Last ann
POLYPROTEIN (FRAGMENT).
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
Best Local Similarity 100.v
ادم 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
```

m

```
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                             Q91DA6
Q91DA6;
                                Q91DA7
           8
                                                                                                                                                                                                                                                                                                                                                                                                                         6
           RESULT
091DA7
                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
Q91DA6
                                  QQ
                                                                                                                                                                                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN=SAMPLE NO.128;
MFDLINE=21538940; Pubmed=11682498;
MFDLINE=21538940; Pubmed=11682498;
Lusida M.I., Nagano-Fujii M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Hotta H.;
"Correlation between Mutations in the Interferon Sensitivity-
Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus
Subtypes 1b, 1c, and 2a.";
J. Clin. Microbiol. 39:3858-3864(2001).
                                                                                                                                                   STRAIN-SAMPLE NO.85;
MEDLINE-21538940; PubMed-11682498;
MEDLINE-21538940; PubMed-11682498;
MEDLINE-21538940; PubMed-11682498;
MIN Magano-Vruji M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Horta H.;
"Correlation between Mutations in the Interferon Sensitivity-
Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus
Subtypes 1b, 1c, and 2a.";
J. Clin. Microbiol. 39:3888-3864(2001).
EMBL; AB056544; BAB63176.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .,
                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.0%; Score 45; DB 12; Length 66; Best Local Similarity 100.0%; Pred. No. 0.088; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                           100.0%; Score 45; DB 12; Length 66; 100.0%; Pred. No. 0.088; ative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66 66
66 AA; 7346 MW; 2D9DCC34533919A3 CRC64;
                                                                                                                                                                                                                                                                  66 66
66 AA; 7374 MW; 2D8AEB04533900BA CRC64;
                                         (TrEMBLrel. 19, Created)
(TrEMBLrel. 19, Last sequence update)
(TrEMBLrel. 19, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
                    66 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                    66 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                 O91DA8
O91DA8;
O1-DEC-2001 (TrEMBLrel. 19, C.
01-DEC-2001 (TrEMBLrel. 19, L.
01-DEC-2001 (TrEMBLrel. 19, L.
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
                             091DA9;
01-DEC-2001 (TTEMBLEEL 1
01-DEC-2001 (TTEMBLEEL 1
01-DEC-2001 (TTEMBLEEL 1
POLYPROTEIN (FRAGMENI).
                                                                                                                                                                                                                                                                                                           Query Match 100.

Best Local Similarity 100.

Matches 9; Conservative
                       PRELIMINARY;
                                                                                      Hepatitis C virus
                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                     NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 111111111
44 ILDSFDPLV 52
                                                                                                                                                                                                                                                                                                                                                                    44 ILDSFDPLV 52
                                                                                                                                                                                                                                                                                                                                                       1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ILDSFDPLV 9
                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
NON_TER
SEQUENCE
                    Q91DA9
                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
Q91DA8
RESULT
Q91DA9
                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                     q
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                            STRAIN-SAMPLE NO. 200, MEDLINE-21538940; PubMed=11682498; MEDLINE-21538940; PubMed=11682498; MEDLINE-21538940; PubMed=11682498; MEDLINE-21538940; PubMed=11682498; Mill and Mill and Mill and Car., Soetjipto, Handajani R., "Correlation between Mutations in the Interferon Sensitivity-"Correlation between Mutations in the Interferon Sensitivity-Subtypes 1b, Ic, and 2a."; ASA Protein and Viral Load of Hepatitis C Virus Subtypes 1b, Ic, and 2a."; ASSB-3864(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lusida M.I., Nagano-Fujii M., Nidom C.A., Soetjipto, Handajani R., Fujita T., Oka K., Hotta H.; "Correlation between Mutations in the Interferon Sensitivity-Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus Subtypes 1b, 1c, and 2a."; J. Clin. Microbiol. 39:3858-3864(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                      Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 45; DB 12; Length 6
100.0%; Pred. No. 0.088;
.ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66 66
66 AA; 7346 MW; 2D9DCC34533919A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66 AA; 7372 MW; 3C8CCC25423919A3 CRC64;
                                       01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 45; DB 12; 100.0%; Pred. No. 0.088;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
STRAIN-SAMPLE NO.193;
MEDLINE-21538940; Pubmed-11682498;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity luv...
9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
  PRELIMINARY;
                                                                                                            POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                           [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44 ILDSFDPLV 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                  NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 ILDSFDPLV
                                                                                                                                                                                  Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dp
```

RESULT 10 **091DA**5

```
STRAIN-SAMPLE NO.327;
STRAIN-SAMPLE NO.327;
STRAIN-SAMPLE NO.327;
MEDLINE-21589840; PubMed=11682498;
Lusida M.I., Nagano-Friji M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Hotta H.;
J. Clin. Microbiol. 39:3858-3864(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Evolution of different viral genomic regions after HCV superinfection of a chronically HIV-infected patient.";

Submitted (MAR-2001) to the EMBL/GenBank/DDBJ databases.

EMBL; AF359354; AAK50761.1; -.

NON_TER 148

SEQUENCE 148 AA; 16050 MW; 1BFC6BFC43C76BA5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS5A PROTEIN (FRACMBNT).
Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
NCBI_TAXID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.0%; Score 45; DB 12; Length 148; Best Local Similarity 100.0%; Pred. No. 0.21; Matches 9; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 45; DB 12; Length 66; 100.0%; Pred. No. 0.088;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER 1 1
NON_TER 66 66
SEQUENCE 66 AA; 7349 MW; 8707A0BE59964169 CRC64;
                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                              01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last seq
01-DEC-2001 (TrEMBLrel. 19, Last ann
POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
Best Local Similarity 100.،
المالية والمالية والمالية
                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103 ILDSFDPLV 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
44 ILDSFDPLV 52
                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44 ILDSFDPLV 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=42 MONTHS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ILDSFDPLV 9
                                                                                                                                                    Q91DA3
Q91DA3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q91SD7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 13
Q91SD7
                                                                                          RESULT 12
                                                                                                                              Q91DA3
                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAIN=SAMPLE NO.324;
MFDLINE=21538940; Pubmed=11682498;
MFDLINE=21538940; Pubmed=11682498;
Lusida M.I., Nagano-Fujii M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Hotta H.;
"Correlation between Mutations in the Interferon Sensitivity-
Determining Region of NS5A Protein and Viral Load of Hepatitis C Virus
J. Clin. Microbiol. 39:3858-3864(2001).
EMBL; AB055548; BAB63180.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-SAMPLE NO.295;
STRAIN-SAMPLE NO.295;
STRAIN-SAMPLE NO.295;
MEDLINE-1538940; PubMed-11682498;
Lusida M.I., Nagano-Friji M., Nidom C.A., Soetjipto, Handajani R.,
Fujita T., Oka K., Hotta H.;
Fujita T., Oka K., Handajani R.,
J. Clin. Microbiol. 39:3858-3864(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses: SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 45; DB 12; Length 66; 100.0%; Pred. No. 0.088; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.0%; Score 45; DB 12; Length 66; Best Local Similarity 100.0%; Pred. No. 0.088; Matches 9; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66 66 AA; 7296 MW; 109FD8B05779B9AF CRC64;
                                                                                                          Q91DA5, PRELIMINARY; PRT; 66 AA.
Q91DA5, Class (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 AA; 7365 MW; 3787CC2E493919A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         091DA4 PRELIMINARY; PRT; 66 AA. 091DA4; 01-DEC-2001 (TrEMBLrel. 19, Created) 01-DEC-2001 (TrEMBLrel. 19, Last sequence update) 01-DEC-2001 (TrEMBLrel. 19, Last sequence update) POLYPROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 100.
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                               Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44 ILDSFDPLV 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
```

ò g RESULT 11
291DA4
AC 091DA4
AC 091DA4
DT 01-DEC
DT 01-DEC
DE POLYPR
OC VILUSE
OC VILUSE
OC NCBL_TR
RP SEQUEN
RX MEDLIN
RX MEDLIN
RA LUSIGA
RA LUSIGA
RA LUSIGA
RT "COLTE
RT "COLTE
RT SUBLYP
RT SUBLYP
RT SUBLY
RT

ô

ö

Gaps

ö

ö

Gaps

; 0

```
ö
                                                                                                                                                                                                                                                                                                                 P. SEQUENCE FROM N.A.
A MOUSDaum J., Polyak S.J., Ray S.C., Sullivan D.G., Larson A.M.,
A Carithers R.L. Jr., Gretch D.R.;
The Prospective characterization of full-length hepatitis C virus NS5A argustspecies during induction and combination antiviral therapy.";
The The Carithers R.L. Argustspecies during induction and combination antiviral therapy.";
The The Carithers R.L. Argustspecies during induction and combination antiviral therapy.";
The Profession Reference of the Carity Reference of 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09E3E2 PRELIMINARY; PRT; 448 AA.
09E3E2;
01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 19, Last annotation update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (FRAGMENT)
Hepatitis C virus type la.
Viruses; SSRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-PATIENT 3;
MEDLINE-20438098; PubMed-10982347;
Nousbaum J., Polyak S.J., Ray S.C., Sullivan D.G., Larson A.M.,
Nousbaum J., Folyak S.J., Ray S.C., Sullivan D.G., Larson A.M.,
Carithers R.L. Jr., Greech D.R.;
Prospective characterization of full-length hepatitis C virus NS5A quasispecies during induction and combination antiviral therapy.";
J. Virol. 74:9028-9038(2000).
EMBL, AF264996; AAG21136.1; -..
InterPro: IPR002868; HCV_NS5a.
InterPro: IPR002166; HCV_NS5a.
                                                                      01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
GENOME POLYPROTEIN (FRAGMENT).
Hepatitis C virus type la.
Hepacitis C virus type la.
Hepacitis SRNA positive-strand viruses, no DNA stage; Flaviviridae;
NCBL_TAXID-31646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nonstructural protein; Polyprotein; RNA-directed RNA polymerase. NON_TER 448 448 448 AA; 49027 MW; 55083E02666FBDE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 45; DB 12; Length 448; 100.0%; Pred. No. 0.7; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   448 448
448 AA; 48943 MW; 2E8F9EDB92E6BFAF CRC64;
                                                     448 AA.
                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF01506; HCV_NS5a; 1.
Pfam; PF00998; HCV_RdRP; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 9; Conservative
                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11111111
280 ILDSFDPLV 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepacivirus.
NCBI_TaxID=31646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 ILDSFDPLV 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON_TER
NON_TER
SEQUENCE
                                                  Q9E3E3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
Q9E3E2
RESULT 14
Q9E3E3
                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
Query Match
Best Local Similarity 100.0%; Score 45; DB 12; Length 448;
Best Local Similarity 100.0%; Pred. No. 0.7;
Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 1 ILDSFDPLV 9
| | | | | | | | | | |
| Db 280 ILDSFDPLV 288
Search completed: August 23, 2002, 10:22:01
Job time: 1501 sec
```

in the

GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.

- protein search, using sw model OM protein August 23, 2002, 10:01:00 Run on:

; Search time 179.72 Seconds
(without alignments)
6.180 Million cell updates/sec

US-08-854-825-35 55 Title: Perfect score:

1 LLFNILGGWV 10 Sequence: Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Total number of hits satisfying chosen parameters:

747574 seqs, 111073796 residues

Searched:

seq length: 0 seq length: 2000000000 Minimum DB s Maximum DB s

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database

1: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1980.DAT:*
2: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
3: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1981.DAT:*
3: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1983.DAT:*
5: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1983.DAT:*
6: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1984.DAT:*
7: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1986.DAT:*
8: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1980.DAT:*
9: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1980.DAT:*
110: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1990.DAT:*
111: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1990.DAT:*
112: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
113: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
114: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
115: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
116: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
117: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
118: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1991.DAT:*
119: /SIDSI/gcgdata/hold-geneseqy/geneseqp-embl/AA1992.DAT:* /SIDS1/gogdata/hold-geneseq/geneseqp-embl/AA1996.DAT:*/SIDS1/gogdata/hold-geneseq/geneseqp-embl/AA1997.DAT:*/SIDS1/gogdata/hold-geneseq/geneseqp-embl/AA1998.DAT:* /SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA1999.DAT:*/SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA2000.DAT:*/SIDS1/gcgdata/hold-geneseq/geneseqp-embl/AA2001.DAT:* A_Geneseq_032802:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Description	Peptide fragment (Antigen fragment 1	HCV NS4 1807-1817	Cytotoxic T-cell e	T_cell epitope/MHC	HLA Class I motif	Hepatitis C virus				
	QI	AAR61496	AAR73104	AAR78941	AAR84576	AAY10230	AAY10501	AAY73104	AAJ00048	AAJ00410	AAJ01882	AAJ03783
	DB	15	15	16	16	20	20	21	22	22	22	22
	Query Match Length DB	10	10	10	10	10	10	10	10	10	10	10
фP	Query Match	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Score	55	55	55	52	55,	52	55	55	55	55	55
	Result No.	-	7	3	4	S	9	7	α0	6	10	11

Hepatitis C virus Hepatitis C virus	S C	ပ	Ø	g	ß	Hepatitis C virus	Hepatitis C virus	Hepatitis C virus	HCV antigen, NS4 1	Hepatitis C virus	Sequence of hepati	Sequence encoded i	HCV polypeptide 11	Hepatitis C virus	HK11. Hepatitis C	NS4B	~~		HCV antigen peptid	Open reading frame	HCV antigen C100.	C terminus of supe	Sequence of the ca	Protein sequence o		NS4		VS4	HCV NS2-NS4 peptid	recombin	CKS-HCV antigen fu	HCV recombinant an
AAJ03862 AAJ03960	AAJ04082	AAJ00411	AAJ00609	AAJ01980	AAJ02012	AAJ02331	AAJ03090	AAJ03396	AAB82062	AAJ04045	AAP90139	AAP92022	AAR25864	AAW41742	AAR25886	AAW92815	AAR98350	AAR29847	AAR29907	AAR23999	AAR90933	AAP90182	AAP92048	AAP90141	AAP92024	AAR29849	AAR29865	AAR29866	AAR29867	AAB69031	AAR33565	AAB69023
22	22	22	22	22	22	22	22	22	22	22	10	10	13	14	13	20	17	13	13	13	17	10	10	10	10	13	13	13	13	22	14	22
10	10	11	11	11	11	11	15	15	20	20	138	138	140	140	166	269	293	320	320	363	363	382	382	460	460	477	477	477	477	512	592	592
100.0			100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
55 55	55	22	52	52	52	55	55	52	52	55	55	52	22	22	52	52	22	22	52	22	52	22	22	52	22	22	52	52	52	52	22	52
12 13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

RESULT

HIVI; plasma specific antigen; hepatitis B virus; Epstein Barr; human immunodeficiency virus; human papilloma virus; p53; c-ERB2; MAGE-1; melanoma antigen-1; core antigen; surface antigen; pharmaceutical composition; in vivo; ex vivo; therapeutic; diagnostic; MHC class I molecule; major histocompatability complex; HLA-A2.1; 9mer; 10mer; anchor; human leukocyte antigen. antigen; epitope; immunogenic target protein; PSA; HBVc; HBVs; EBV; Peptide fragment (1.0891) of HCV binds HLA-A2.1. ¥. AAR61496 standard; peptide; 10 (first entry) 11-MAY-1995 AAR61496; **AAR61496**

Hepatitis C virus. WO9420127-A.

15-SEP-1994.

93US-0027146. 93US-0073205. 93US-0159184. 94WO-US02353. 05-MAR-1993; 04-JUN-1993; 29-NOV-1993; 04-MAR-1994;

(CYTE-) CYTEL CORP.

Grey HM, Kast WM, Sette A, Sidney J;

~

ö

Gaps

ö

Indels

```
AAR73058-121 are potential peptide binders of HLA-A2.1 motif. Using motifs disclosed in the invention, these peptides were screened for further motifs. Only peptides with binding affinity of at least 1% (binding affinity is expressed as an IC50 value) as compared to the standard peptide (AAR71293) in assays. This peptide from hepatitis of virus has an binding value of 0.400. The peptides of the invention can induce cytotoxic T lymphocytes which can react with target cells. They can be used for the treatment or prophlyaxis of cancer, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A compsn. which induces a cytotoxic T lymphocyte (CTL) response to a hepatitis C virus (HCV) antigen (Ag) in a mammal comprises, a HCV CTL Ag response inducing peptide (i.e. AAR78941-R78955) and a lipid conjugated helper T cell inducing peptide. The compsn. is useful in the treatment and prevention of hepatitis C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HCV NS4 1807-1817; cytotoxic T; CTL; epitope; helper T; HTL; cell; lymphocyte; antigens; treatment; disease prevention; hepatitis C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Compsn. inducing cytotoxic T lymphocyte response to pref. viral, bacterial, parasitic or tumour antigens - useful in the treatment and prevention of diseases associated with the antigen e.g. hepatitis B
                                                                                                                                                                                                                                                                                               100.0%; Score 55; DB 15; Length 10; 100.0%; Pred. No. 0.0013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HCV NS4 1807-1817 cytotoxic T lymphocyte epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 55; DB 16;
illarity 100.0%; Pred. No. 0.0013;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vitiello MA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 12; Page 70; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR78941 standard; peptide; 10 AA.
                                                                                                                                                                                     prostate cancer or lymphoma, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Grey H, Sette AD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95WO-US02121.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94US-0197484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                   Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1995-302545/39.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (CYTE-) CYTEL CORP.
                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                      1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus.
                                                                                                                                                                                                                                 10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               non-A; non-B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO9523317-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-FEB-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-AUG-1995
                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ceut RW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR78941;
                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  m
      888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                            AARS9496-R61666 are immunogenic 10mer peptides that contain a HLA-A2.1 binding motif. These peptides bind HLA-A2.1 and have a binding affinity of at least 1% as compared to a reference peptide (AAR71293). AAR61496 has an IC50 of 3.5 and the sequence occurs at position 1807 in the HCV LORF protein. The peptides of the invention can induce cytotoxic T lymphocytes which can react with target cells. They can be used for the treatment or prophlyaxis of cancer, eg. prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      antigen; epitope; immunogenic target protein; PSA; HBVc; HBVs; EBV; HIV1; plasma specific antigen; hepatitis B virus; Epstein Barr; human immunodeficiency virus; human papilloma virus; p53; c-ERB2; MAGE-1; melanoma antigen; surface antigen; surface antigen; pharmaceutical composition; in vivo; ex vivo; therapeutic; diagnostic; MHC class I molecule; major histocompatability complex; HIA-A2.1; 9mer; 10mer; anchor; human leukocyte antigen; PLP; 8mer; algorithm prediction; MBP; CMV; cytomegalovirus; HSV; herpes simplex virus; influenza A; MI.
                                                Immunogenic peptide(s) having an HLA-A2.1 binding motif - used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Immunogenic peptide(s) having an HLA-A2.1 binding motif - used for treatment or prophylaxis of cancer, virus infection or autoimmune diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Antigen fragment 1 from HCV has binding affinity for HLA-2.1.
                                                                       for treatment or prophylaxis of cancer, virus infection or autoimmune diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ·
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 55; DB 15; 100.0%; Pred. No. 0.0013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sidney J;
                                                                                                                                     Example 5; Page 107; 138pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page 90; 138pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR73104 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93US-0027146.
93US-0073205.
93US-0159184.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sette A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94WO-US02353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                          cancer or lymphoma, etc.
    WPI; 1994-302678/37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1994-302678/37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Grey HM, Kast WM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CYTE-) CYTEL CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                    10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-MAR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-JUN-1993;
29-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-MAR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9420127-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR73104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
```

AAR73104 RESULT

g ò

ö

Gaps

ó

Indels

Length 10;

AAR84576

a

```
The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen, an embryonic antigen, an endoceme antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of diseases such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes that is necessary to keep CTL active, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAX10071 to AAX10639 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                                                                                                                       Inducing a cytotoxic T lymphocyte response - by maintaining a leve of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cytotoxic T-lymphocyte response, CTL; antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 55; DB 20; Length 10
100.0%; Pred. No. 0.0013;
.ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HLA Class I motif peptide SEQ ID NO:431.
                                                                                                                                                                                                                                                                                                                                                      Disclosure; Page 30; 199pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAY10501 standard; Peptide; 10 AA.
                                                                                                                                                        (CTLI-) CTL IMMUNOTHERAPIES CORP.
                                                          98WO-US14289
                                                                                               97US-0988320.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97US-0988320.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98WO-US14289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.

Best Local Similarity 100.

Matches 10; Conservative
                                                                                                                                                                                                                                   WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic.
Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10 AA;
                                                                                               10-DEC-1997;
10-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9902183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-DEC-1997;
                    21-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-JAN-1999
                                                                                                                                                                                            Kuendig TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAY10501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY10501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
    δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR84570-616, AAR84885-90 and AAR91054 are all HCV-1 derived peptides from the core, El, E2/NS1, NS2, NS3, NS4 or NS5 regions. The peptides were tested for peptidide specific cytotoxic T-cell activity. The peptides AAR84570-77 were found to have substantial homology with a T-cell epitope and are useful in vaccines against HCV infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cytotoxic T-lymphocyte response, CTL, antigen; lymphatic system; immunisation; tumour; infectious disease; immunotherapy; cancer; malignant melanoma; viral disease; hepatitis; AIDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Novel molecule comprising a cytotoxic T cell epitope - used to vaccinate against hepatitis C viral infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 55; DB 16; Length 10;
Pred. No. 0.0013;
Mismatches 0; Indels
                                                                                                                                                                                                                                 Cytotoxic T-cell epitope, aa 1807-1816 of HCV-1 NS3 region.
                                                                                                                                                                                                                                                                       Hepatitis C virus; HCV; epitope; vaccine; immunogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T cell epitope/MHC ligand SEQ ID NO:160.
                                                                                                             AAR84576 standard; peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY10230 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; Page 69; 85pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                               95WO-US03224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94US-0214650.
                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (SCRI ) SCRIPPS RES INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cerny A, Chisari FV;
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10 AA;
                                                                                                                                                                                                                                                                                                                                                  W09525122-A1
                                                                                                                                                                                                                                                                                                                                                                                                                             16-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-MAR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9902183-A2
                                                                                                                                                                                        25-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                         21-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAY10230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
```

S

ò

AAY10230 RESULT

ö

Gaps

. 0

us-08-854-825-35.rag

```
WO200121189-A1.
13-MAY-1998;
15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-MAR-2001
                                                                             Chesnut RW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antiviral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAJ00048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAJ00048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                         an embryonic antigen, an oncogene antigen, a mutated tumour-suppressor gene antigen, or a viral antigen. They can be used for the treatment of disease such as cancer, e.g. malignant melanoma or infectious disease, e.g. viral disease such as hepatitis or AIDS. Sustained antigen delivery to the lymphatic system provides for potent CTL stimulation that takes blace in the millau of the lymphoid organ, and it sustains stimulation that is necessary to keep CTL active, cytotoxic and recirculating through the body. AAY10071 to AAX10639 represent examples of peptide antigens given in the present invention.
                                                                                                                                                                               The present invention describes a method of inducing and/or sustaining an immunological cytotoxic T lymphocyte (CTL) response in a mammal. The method comprises: (a) delivering an antigen to the mammal at a level to induce an immunological CTL response in the mammal; and (b) maintaining the level of the antigen in the mammal's lymphatic system to maintain the immunologic CTL response. The method can be used for the delivery of e.g. a differentiation antigen, a tumour-specific multilineage antigen,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chimeric; pan DR epitope; expression vector; promoter: major histocompatibility complex; MHC; targetting; peptide; epitope; antigen; presentation; class I; cytosolic pathway; endoplasmic reticulum; class II; extracellular antigen; endocytic pathway; helper T lymphocyte; HTL; universal epitope; cytocoxic P lymphocyte; CTL; immune response; immunogenicity; assay; vaccine; immunity; infection; pathogen; virus; HIV; HBV; HCV; hepatitis B; hepatitis C; bacterium; protozoan; tumour cell; autoimmune disease; activation; antiviral; antimalarial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                      Inducing a cytotoxic T lymphocyte response - by maintaining a level of antigen in the lymphatic system of a mammal so as to provide a sustained CTL response, used to treat, e.g. AIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus (HCV)-derived MHC class I (CTL) epitope, #262.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 55; DB 20; Length 10; 100.0%; Pred. No. 0.0013; Live 0; Mismatches 0; Indels
                                                                                                                                                        Disclosure; Page 43; 199pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAY73104 standard; Peptide; 10 AA.
                           (CTLI-) CTL IMMUNOTHERAPIES CORP
97CA-2209815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99WO-US10646.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10; Conservative
                                                  Simard JJL;
                                                                             WPI; 1999-120514/10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis c virus.
                                                                                                                                                                                                                                                                                                                                                                                                         10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     immunoprotective
10-JUL-1997;
                                                   Kuendig TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W09958658-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                           Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY73104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAY73104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QQ
ò
```

```
Sequences AAY73103-Y73145 represent hepatitis C virus (HCV)-derived MHC class I (CTL) epitopes which are claimed for use in the present invention. The invention relates to a novel expression vector comprising a promoter operably linked to a fusion gene encoding a major histocompatibility complex (MHC) targetting sequence, and two or more heterologous peptide epitopes. The MHC targetting sequence may be a class I targetting sequence, which directs an MHC class I epitope to a cytosolic pathway or to the endoplasmic reticulum, or an MHC class II targetting sequence. Which directs as with a ratigues to enter the endocytic pathway to be processed into antigen peptides for presentation on MHC class II molecules. The heterologous for presentation on MHC class II molecules. The heterologous corrections are useful to epitope such as a pan DR epitope (PADRE). The vectors are useful.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for stimulating an immune response in vivo, as well as for use in assaying the human immunogenicity of a human T cell peptide epitope in vivo in a non-human mammal. They provide a nucleic acid vaccine for enhancing immunity against infectious pathogens, such as viruses (e.g., HIV, hepatitis B (HBV and hepatitis C (HCV)) bacteria, protozoa (e.g., Plasmodium falciparum, the cause of malaria) and also tumour cells and autoimmune diseases. Universal MHC class II epitopes are advantageously combined with other MHC class I and class II epitopes to increase the number of cells that are activated in response to a given antigen and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                  Sette A, Ishioka GY, Livingston B;
                                                                                                                                                                                                                                                                                                                                                                                                             Expression vectors encoding major histocompatibility targeting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            provide a broader population coverage of MHC-reactive alleles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 55; DB 21; Length 10; Pred. No. 0.0013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence, used as, e.g. tumor vaccines -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAJ00048 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 11; Page 68; 130pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus epitope #39.
98US-0078904.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-JUL-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                          Hermanson GG,
                                                                                                                            (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                              WPI; 2000-039103/03.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus.
```

Ŋ

ö

Gaps

ö

Indels

Length 10;

Sequence

Query Match Best Local S Matches 10

```
The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AA000010-AAJ04121. These are derived from HCV HLA binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.0\%; Score 55; DB 22; Length 10; Best Local Similarity 100.0\%; Pred. No. 0.0013; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Livingston BD,
                100.0%; Score 55; DB 22;
100.0%; Pred. No. 0.0013;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Southwood S, Livi
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Page 147; 214pp; English.
                                                                                                                                                                                                         AAJ01882 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAJ03783 standard; Peptide; 10 AA
                                                                                                                                                                                                                                                                                                               Hepatitis C virus epitope #1873.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hepatitis C virus epitope #3774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-308046/32
                 Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                     10
                                                                                                       1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10 AA;
                                                                                     1 LLFNILGGWV
                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200121189-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sette A,
Baker DM,
                                                                                                                                                                                                                                                                                                                                                               antiviral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                           AAJ01882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAJ03783;
                                                                                                                                                                       RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11
                                                                                                                                                                                           AAJ01882
                                                                                     δλ
                                                                                                                    qq
                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ag
                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ0010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                    The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif; antiviral.
                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                     A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                   Chesnut R;
                                                                                                                                                                                                                                                                                                                                                                              Score 55; DB 22; Length 10;
Pred. No. 0.0013;
Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Southwood S, Livingston BD,
Kubo RT, Grey HM;
                                                                Livingston BD,
                                                                S, Livin
Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Page 110; 214pp; English.
                                                                                                                                                                                      Claim 4; Page 207; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAJ00410 standard; Peptide; 10 AA.
                                                                  Southwood
Kubo RT,
                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepatitis C virus epitope #401
                                                                                                                                                                                                                                                                                                                                                                              100.0%;
ilarity 100.0%;
Conservative 0;
99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                (EPIM-) EPIMMUNE INC.
                                                                  Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sidney J,
Celis E,
                                                                                                                    WPI; 2001-308046/32.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                            10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200121189-A1.
19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                               10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29-MAR-2001
                                                                  Sette A,
Baker DM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sette A,
Baker DM,
```

AAJ00410

AAJ0043 RESULT

QQ

ò

Chesnut R;

ö

Gaps

ö

Seguence

Baker

9

ö

Gaps

```
The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif; antiviral.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ä
                                                                                                                                      Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 10;
                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Livingston BD,
                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 55; DB 22;
.larity 100.0%; Pred. No. 0.0013;
Conservative 0; Mismatches 0;
                                                                                                                                    Score 55; DB 22;
Pred. No. 0.0013;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S, Livir
Grey HM;
  Example 2; Page 191; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 3; Page 196; 214pp; English.
                                                                                                                                                                                                                                                                      AAJ03960 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus epitope #3951.
                                                                                                                                   Query Match 100.0%; Some Best Local Similarity 100.0%; P. Matches 10; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Southwood
Kubo RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0357737
                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sidney J,
Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-308046/32
                                                                                                                                                                                   1 LLFNILGGWV 10
                                                                                                                                                                                                 Best Local Similarity
Matches 10; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus
                                                                                                10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-JUL-1999;
                                                                                                                                                                                                                                                                                                                       02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sette A,
Baker DM,
                                                                                                   Seguence
                                                                                                                                                                                                                                                                                               AAJ03960;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                               13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                            AAJ03960
                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                 The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding mottlfs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                 A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                     ·
0
                                                                                                                                                                       Chesnut R;
                                                                                                                                                                                                                                                                                                                                                                                                Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                       Livingston BD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Livingston BD,
                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match 100.0%; Score 55; DB 22; Best Local Similarity 100.0%; Pred. No. 0.0013; Matches 10; Conservative 0; Mismatches 0;
                                                                                                                                                                        S, Livir
Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S, Livin
Grey HM;
                                                                                                                                                                                                                                                        Disclosure; Page 187; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAJ03862 standard; Peptide; 10 AA.
                                                                                                                                                                       Southwood S
Kubo RT, (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepatitis C virus epitope #3853.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Southwood :
Kubo RT, (
                                                                                               19-JUL-2000; 2000WO-US19774.
                                                                                                                       99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-JUL-2000; 2000WO-US19774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-JUL-2001 (first entry)
                                                                                                                                                                     Sidney J,
, Celis E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (EPIM-) EPIMMUNE INC
                                                                                                                                              (EPIM-) EPIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sidney J,
Celis E,
                                                                                                                                                                                                         WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hepatitis C virus;
                        Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                           10 AA;
                                               WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200121189-A1.
                                                                                                                       19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-JUL-1999;
                                                                       29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sette A, S
Baker DM,
                                                                                                                                                                       Sette A,
Baker DM,
 antiviral.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAJ03862;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            antiviral
                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAJ03862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
```

ö

Gaps

```
(EPIM-) EPIMMUNE INC.
                              Sette A,
Baker DM,
                                                                                                                                                                                 Sequence
                                                                                                                                                                                                             Query Match
  δλ
                                                                                                                                                                                                                                                                      QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                        Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis C virus; HCV; epitope; vaccine; immunogen; HLA-binding motif; antiviral.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                          A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                              ;;
0
                                                                                                                                                                                                                                          Chesnut R;
                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 55; DB 22; Length 10; 100.0%; Pred. No. 0.0013; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                          Livingston BD,
                                                                                                                                                                                                                                          Southwood S, Livin
Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                             Example 7; Page 203; 214pp; English.
         AAJ04082 standard; Peptide; 10 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAJ00411 standard; Peptide; 11 AA.
                                                                    Hepatitis C virus epitope #4073.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepatitis C virus epitope #402.
                                                                                                                                                                               19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-JUL-2000; 2000WO-US19774.
                                                                                                                                                                                                   99US-0357737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0357737
                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity 100.
nes 10; Conservative
                                                                                                                                                                                                                      (EPIM-) EPIMMUNE INC.
                                                                                                                                                                                                                                          Sidney J,
Celis E,
                                                                                                                                                                                                                                                                     WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hepatitis C virus.
                                                                                                                    Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                            10 AA;
                                                                                                                                        WO200121189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200121189-A1.
                                                                                                                                                                                                   19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUL-1999;
                                                 02-JUL-2001
                                                                                                                                                            29-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-MAR-2001
                                                                                                                                                                                                                                          Sette A,
Baker DM,
                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                             AAJ04082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAJ00411;
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAJ00411
AAJ04082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                   qq
```

```
ő
                                                                                                                                                                                                                      The present invention describes a composition comprising a prepared hepatitis C virus (HCV) epitope such as those given in AAJ00010-AAJ04121. These are derived from HCV HLA-binding motifs. They are useful in vaccines for the prevention and treatment of HCV infection in humans. The present sequence is an epitope used in the disclosure of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                         A new composition useful as a vaccines against hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
  Ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 11;
  Chesnut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
Southwood S, Livingston BD, Kubo RT, Grey HM;
                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 55; DB 22;
100.0%; Pred. No. 0.0015;
11ve 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: August 23, 2002, 10:01:01 Job time: 391 sec
                                                                                                                                                                       Disclosure; Page 110; 214pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
Sidney J,
Celis E,
                                                                        WPI; 2001-308046/32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
Matches 10; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 11fnilggwv 10
                                                                                                                                                                                                                                                                                                                                                                         11 AA;
```

```
1021
1021
1021
1021
1692
1692
1786
2013
2013
                                                                                                                                                                                                               2013
2261
2307
2307
2307
2436
2620
2620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; MOLECULE TYPE: peptide US-08-214-650-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLFNILGGWV 10
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-214-650-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE:
δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Appl
Appl
3, App
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Appl
Appli
Appli
Appli
Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Appl
Appl
Appl
Appl
                                                                                                                                            Search time 61.77 Seconds (without alignments) 3.954 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1, A
68,
20,
58,
47,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 35,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4, 1
9, 1
30,
52,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sednence sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sednence Sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-214-650-35
PCT-US95-02121-46
PCT-US95-02121-125
US-08-444-018-16
US-09-263-933-25
US-08-344-977-44
US-08-344-977-44
US-08-344-977-44
US-08-344-977-44
US-08-344-118-20
US-08-444-018-20
US-08-444-018-20
US-08-867-611-58
US-08-867-611-16
PCT-US92-0695A-23
PCT-US92-0695A-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCT-US92-06965A-9
US-08-444-818-30
US-08-867-611-52
US-08-867-611-53
US-08-867-611-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-867-611-49
US-08-444-818-148
US-08-867-611-4
                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                       231628 segs, 24425594 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                  GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                            August 23, 2002, 09:57:53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                       protein search, using sw model
                                                                                                                                                                                                                                                                                                                       BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                        US-08-854-825-35
55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             length: 0
length: 2000000000
                                                                                                                                                                                                                                                                            1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                      Perfect score:
                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                   OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0B
DB
                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                    Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum I
Maximum I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Database
                                                                                                                                              Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
110
111
111
112
113
113
114
114
117
117
117
118
22
22
23
24
25
25
25
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Appl
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Appl
Appl
Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 16, Sequence 75, Sequence 32, Seque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                               Sequence 12,
Sequence 12,
                                                                                                                                                                                Sequence 1
Sequence 1
Sequence 5
                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1
Sequence 1
Sequence 6
                                                      Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Chisari, Francis V.
APPLICANT: Cerny, Andreas
TITLE OF INVENTION: PEPTIDES FOR INDUCING CYTOTOXIC T
TITLE OF INVENTION: LYMPHOCYTE RESPONSES TO HEPATITIS C VIRUS
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:
ADDRESSEE: Leydig, Voit & Mayer
STREET: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 55; DB 1; Length 10; 100.0%; Pred, No. 0.00065; Pred. No. 0.10065; Ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION NATA:
APPLICATION NUMBER: US/08/214,650
US-07-910-760-12
US-08-440-519-12
US-08-440-519-12
US-09-263-933-11
US-09-263-933-11
US-09-263-933-11
US-08-344-818-54
US-08-344-818-54
US-08-34-977-12
US-08-34-616-12
US-09-315-850-12
US-09-315-850-12
US-09-315-850-12
US-09-315-850-12
US-09-315-850-12
US-09-315-850-12
US-09-315-850-12
US-09-315-850-12
US-09-315-850-12
US-09-263-933-9
US-09-263-933-16
US-08-344-818-75
US-08-444-818-75
US-08-444-818-75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 35, Application US/08214650; Patent No. 5709995; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY AGENT INFORMATION:
NAME: S11vert, Donald J.
REGISTRATION UNDRER: 37552
REFERENCE/DOCKET UNDRER: 6123
TELECOMMUNICATION INFORMATION:
TELEFAX: (312) 616-5600
TELEFAX: 25-3533
INFORMATION FOR SEQ ID NO: 35:
SEQUENCE CHARACTERISTICS:
LENGTH: 10 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
```

a

```
;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Chien, Bavid Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NANBV Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/OR////
  PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 55; DB 5; I
100.0%; Pred. No. 0.00065;
iive 0; Mismatches 0;
                                                                                                                                                                                  PFLING DATA: 10-FEB-1994

PFLING DATE: 10-FEB-1994

PPLICATION NUMBER: US 07/935,811

FILING DATE: 26-AUG-1992

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 07/874,491

FILING DATE: 27-APR-1992

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 07/827,682

FILING DATE: 29-CAN-1992

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 07/749,568

FILING DATE: 26-GG-1991

ATTORNEY/AGENT INFORMATION:

NAME: PARMEDER: 26-GG-1991

ATTORNEY/AGENT INFORMATION:

RESISTRATION NUMBER: 31,990

REFERENCE/DOCKET NUMBER: 14137-26-4PC

TELECOMMUNICATION NUMBER: 11,990

REFERENCE/COKCET NUMBER: 14137-26-4PC

TELECOMMUNICATION NUMBER: 12,9600

TELECOMMUNICATION NUMBER: 12,9600

TELEFAX: (415) 543-5643

INFORMATION FOR SEQ ID NO: 125:

SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                   JMBER: PCT/US95/02121
16-FEB-1995
                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/197,484
FILING DATE: 16-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-444-818-16; Sequence 16, Application US/08444818; Patent No. 6150087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 10 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: peptide
                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 LLFNILGGWV 10
                                                                       FILING DATE: 1 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PCT-US95-02121-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ^{\text{CA}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                          TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR ELICITING TITLE OF INVENTION: CTL IMMUNITY NUMBER OF SEQUENCES: 153
COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY disk
COMPUTER: IBM PC COMPATIEN: PC COMPATIEN: PC COMPATIEN: PC COMPATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 125, Application PC/TUS9502121
GENERAL INFORMATION:
APPLICANT:
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR ELICITING
TITLE OF INVENTION: CTL IMMUNITY
NUMBER OF SEQUENCES: 153
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Floppy disk
COMPUTER: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 55; DB 5; Length 10; 100.0%; Pred. No. 0.00065; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/02121
FILING DATE: 16-FEB-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR PARLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/197,484
FILING DATE: 16-FEB-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/935,811
FILING DATE: 20-AUG-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/874,491
FILING DATE: 27-APR-1992
APPLICATION NUMBER: US 07/827,682
FILING DATE: 29-JAN-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/749,568
FILING DATE: 26-AUG-1991
ATORNEY/AGENT INFORMATION:
NAME: PATMELES, Steven W.
REFERENCE/DOCKET NUMBER: 31,990
REFERENCE/DOCKET NUMBER: 31,990
REFERENCE/DOCKET NUMBER: 14137-26-4PC
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                  Sequence 46, Application PC/TUS9502121
GENERAL INFORMATION:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (415) 543-5043
INFORMATION FOR SEQ ID NO: 46:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
STRANDEDNESS: unknown
TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; MOLECULE TYPE: peptide PCT-US95-02121-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLFNILGGWV 10
1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 3
PCT-US95-02121-125
                                                                                           PCT-US95-02121-46
```

ò g

ö

Gaps

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 55; DB 1; Length 247; 100.0%; Pred. No. 0.02; 1ve 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 44, Application US/08384616
Patent No. 5847101
GENERAL INFORMATION:
APPLICANT: OKAYAMA, Hiroto
APPLICANT: FUKE, ISAO
APPLICANT: TAKANIZAMA, Akahisa
APPLICANT: TAKANIZAMA, Akahisa
APPLICANT: YOSHIDA, IWAO
TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC
                        NUMBER OF SEQUENCES: 50
CORRESPONDENCE ADDRESS:
ADDRESSEE: Armstrong, Westerman, Hattori, McLeland &
ADDRESSEE: Naughton
    CDNA AND ANTIGEN POLYPEPTIDE
                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
                                                                                                                                                                                                                                                                                                                    SOFTWARE: ASCII.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/324,977
FILING DATE: 18-0CT-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-167466
FILING DATE: 25-JUN-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-230921
FILING DATE: 31-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
FILING DATE: 09-NOV-1990
PRIOR APPLICATION NUMBER: US 08/099,706
FILING DATE: 30-JUL-1993
PRIOR APPLICATION NUMBER: US 07/69,996
FILING DATE: 30-JUL-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/635,451
FILING DATE: S0-DEC-1991
ATTORNEY/AGENT INFORMATION:
NAME: STEVENSE MINBER:
NAME: STEVENSE MINBER: 36,281
RESTERRENCE/DOCKET MUMBER: 900703D
                                                                                                                 STREET: 1725 K St. N.W. Suite 1000 CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: 90
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEX: 440142
INFORMATION FOR SEQ ID NO: 44:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (202) 659-2930
(202) 887-0357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 247 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 100.0
Best Local Similarity 100.0
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: protein US-08-324-977-44
    TITLE OF INVENTION:
                                                                                                                                                                             TKY: U.S.A.
20006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 7
US-08-384-616-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX:
                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               αq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Potts, Karen E.
APPLICANT: Detts, Karen E.
APPLICANT: Detts, Amy K.
TITLE OF INVENTION: REPORTER GENE SYSTEM FOR USE IN CELL-BASED ASSESSMENT
TITLE OF INVENTION: OF INHIBITORS OF THE HEPATITIS C VIRUS PROTEASE
FILE REFERENCE: 0125-0005A
CURRENT APPLICATION NUMBER: US/09/263,933
CURRENT FILING DATE: 1999-03-08
EARLIER APPLICATION NUMBER: 09/129,611
EARLIER PILING DATE: 1998-08-05
NUMBER OF SEQ ID NOS: 33
SOFTWARE: PATENT OF SEC ID NOS: 33
SOFTWARE: PATENT OF SEC ID NOS: 33
SEQ ID NO 25
LENGTH: 177
                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTHER INFORMATION: Description of Artificial Sequence: amino acid proper INFORMATION: fragment of the HCV polyprotein US-09-263-933-25
                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 55; DB 4; Length 138; 100.0%; Pred. No. 0.011; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 55; DB 4; Length 177; 100.0%; Pred. No. 0.014; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 44, Application US/08324977
Patent No. 5747339
GENERAL INFORMATION:
APPLICANT: CAXAMA, Hiroto
APPLICANT: FUKE, Isao
APPLICANT: TAKAMISA
APPLICANT: TAKAMISA
APPLICANT: TAKAMISAMA, Akahisa
APPLICANT: YOSHIDA, Iwao
TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC
                                                                                         0110.002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 25, Application US/09263933 Patent No. 6280940
                                        NAME: Harbin, Alisa A.
REGISTATION UNDBER: 33,995
REFERENCE/DOCKET NUMBER: 0110
TELECOMMUNICATION INFORMATION:
TELEFONE: (508)359-3876
TELEFONE: (508)359-3876
INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHRRACTERISTICS:
LENGTH: 138 amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT ORGANISM: Artificial Sequence
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Harbin, Alisa A.
                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                           TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-444-818-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97 LLFNILGGWV 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15 LLFNILGGWV 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 5
US-09-263-933-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-324-977-44
```

δ q ö

Gaps

ŏ g

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.0%; Score 55; DB 2; Length 247; Best Local Similarity 100.0%; Pred. No. 0.02; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 44, Application US/09315850
Patent No. 6217872
GENERAL INFORMATION:
APPLICANT: OKAYAMA, Hiroto
APPLICANT: FURE, Isao
APPLICANT: TARAMIZAMA, Akahisa
APPLICANT: TARAMIZAMA, Akahisa
APPLICANT: YOSHIDA, Iwoa
TITLE OF INVENTION: CDNA AND ANTIGEN POLYPEPTIDE
TITLE OF INVENTION: CDNA AND ANTIGEN POLYPEPTIDE
          ADDRESSEE: Armstrong, Westerman, Hattori, McLeland &
                                                                                                                                                                                               MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
                                                                                                                                                                                                                                                                   SOFTWARE: ASCII

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/904,686A
FILING DATE: 01-AUG-1997
RIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/324,977
FILING DATE: 18-OCT-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: UP 2-167466
FILING DATE: 25-UUN-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: UP 2-30921
FILING DATE: 31-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/099,706
FILING DATE: 09-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/099,706
FILING DATE: 30-JUL-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/69,996
FILING DATE: 30-JUL-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/69,996
FILING DATE: 28-DEC-1990
ATTORNEY-AGENT INFORMATION:
ANALE: APPLICATION NUMBER: US/07/635,451
FILING DATE: 28-DEC-1990
ATTORNEY-AGENT INFORMATION:
ANALE: APPLICATION NUMBER: US/07/635,451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: McLeland, Le-Nhung
REGISTRATION NUMBER: 31,541
REFERENCE/DOCKET NUMBER: 900703G
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 867-0357
INFORMATION FOR SEQ ID NO: 44:
SEQUENCE CHARACTERISTICS:
                      3: Naughton
1725 K St. N.W. Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; MOLECULE TYPE: protein US-08-904-686A-44
                                                                                                                                                                        COMPUTER READABLE FORM:
                                                                             Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      192 LLFNILGGWV 201
                                                                                                                             COUNTRY: U.S.A. ZIP: 20006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 9
US-09-315-850-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-OB-904-686A-44
; Sequence 44, Application US/08904686A
; Sequence 44, Application US/08904686A
; GENERAL INFORMATION:
; GENERAL INFORMATION:
; APPLICANT: PUKE, Isao
; APPLICANT: To CANIZAMA, Akahisa
; APPLICANT: TOSHIIDA, IWAO
; TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC
; TITLE OF INVENTION: CDNA AND ANTIGEN POLYPEPTIDE
; NUMBER OF SEQUENCES: 50
; CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.04; Score 55; DB 2; Length 247; Best Local Similarity 100.04; Pred. No. 0.02; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                      ADDRESSEE: Armstrong, Westerman, Hattori, McLeland & ADDRESSEE: Naughton STREET: 1725 K St. N.W. Suite 1000
     CDNA AND ANTIGEN POLYPEPTIDE 50
                                                                                                                                                                                                                                                                     MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
                                                                                                                                                                                                                                                                                                                                                                                                          FILING APTE:
CLASSIFICATION 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/769,996
FILING DATE: 02-0CT-1991
APPLICATION NUMBER: UP 2-167466
FILING DATE: 25-JUN-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: UP 2-33021
FILING DATE: 31-306-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: UP 2-330505
FILING DATE: 09-NOV-1990
PRIOR APPLICATION NUMBER: US 07/635,451
FILING DATE: 28-DEC-1990
ATTORNEY ACENT INFORMATION:
NAME: SLEVENS-SMITH, Theresa M.
REGISTRATION NUMBER: 36,281
                                                                                                                                                                                                                                                                                                                                           SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/384,616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900703B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: 90
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 659-2930
TELEFAX: (202) 887-0357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: 44: SEQUENCE CHARACTERISTICS: LENGTH: 247 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; MOLECULE TYPE: protein US-08-384-616-44
                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
TITLE OF INVENTION: CD NUMBER OF SEQUENCES: 5 CORRESPONDENCE ADDRESS:
                                                                                                                                                 CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    192 LLFNILGGWV 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 LLFNILGGWV 10
                                                                                                                                                                                                    U.S.A.
                                                                                                                                                                                                                     20006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                    COUNTRY:
```

ö

ò

```
TITLE OF INVENTION: ATPASE PROTEIN FROM A VIRUS OF THE FLAVIVIRIDAE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 55; DB 3; Length 269; 100.0%; Pred. No. 0.022; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 68, Application US/08444818
Patent No. 6150087
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
APPLICANT: Rutter, William J.
TITLE OF INVENTION: NANBV Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESS:
ADDRESSEE: Chiron Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                           OPERATING SYSTEM: DOS
SOFTWARE: FastESD for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/100,557
FILING DATE: 19-JUN-1998
                                                                  ADDRESSEE: SmithKline Beecham Corporation
STREET: 709 Swedeland Road
CITY: King of Prussia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/444,816
                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/051,582
FILING DATE: 02-JUL-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            33,680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION: TELEPHONE: 610-270-5017
                                                                                                                                                                                                                                                   COMPUTER: IBM Compatible OPERATING SYSTEM: DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 269 amino acids
TYPE: amino acid
                                                                                                                                  STATE: PA
COUNTRY: USA
ZIP: 19406-0939
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Dinner, Dara L. REGISTRATION NUMBER: 33 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 610-270-5090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , MOLECULE TYPE: protein US-09-100-557-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 94608-2916
COMPUTER READABLE FORM:
                       NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96 LLFNILGGWV 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-444-818-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY:
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 4; Length 247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ch 100.0%; Score 55; DB 4; Length 24 sl Similarity 100.0%; Pred. No. 0.02; 10; Conservative 0; Mismatches 0; Indels
                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Armatrong, Westerman, Hattori, McLeland & ADDRESSEE: Naughton STREET: 1725 K St. N.W. Suite 1000
                                                                                                                                                                                                                       MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/09100557
Patent No. 6010848
GENERAL INFORMATION:
BPPLICANT: Zhong, Weldong
TITLE OF INVENTION: SCREENING METHODS USING AN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRION APPLICATION DATA:

APPLICATION NUMBER: US 07/769,996
FILING DATE: 02-0CT-1991
PRION APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 07/635,451
FILING DATE: 28-DEC-1990
ATTORNEY/AGENT INFORMATION:
NAME: MCLeland, Le-Nhung
REGISTRATION NUMBER: 31,541
REFERENCE/OCKET NUMBER: 31,541
REFERENCE/OCKET NUMBER: 900703G
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 100 169-2930
TELECOMMUNICATION 100 144:
SEQUENCE CHARACTERISTICS:
LENGHH: 247 maino acids
                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US,08/904,686
FILING DATE: 01-0406-1997
APPLICATION NUMBER: US 08/324,977
FILING DATE: 18-0CT-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-167466
FILING DATE: 25-JUN-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-230921
FILING DATE: 31-40G-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
FILING DATE: 09-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/099,706
FILING DATE: 30-JUL-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/099,706
FILING DATE: 30-JUL-1993
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                              SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/315,850
                                                                                                                                                                          ZIP: 20006
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: protein
NUMBER OF SEQUENCES:
                                                                                                            Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192 LLFNILGGWV 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 10; Conserv
                                                                                                                                                         U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-315-850-44
                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
US-09-100-557-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
```

à

ó

Gaps

. 0

```
APPLICANT: DESAL, SURESH M
APPLICANT: DESAL, SURESH M
APPLICANT: CASEY, JAMES M
APPLICANT: CASEY, JAMES M
APPLICANT: DAILEY, STEPHEN H
APPLICANT: DAWSON, GEORGE J
APPLICANT: GUTERREZ, ROBIN A
APPLICANT: STEWREY, TRICHARD R
APPLICANT: STEWREY, JAMES L
APPLICANT: RUPPRECHT, KEVIN R
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: ANTIGENS
NUMBER OF SEQUENCES: 59
CORRESPONDENCE ADDRESS:
ADDRESSEE: ABBOTT LABORATORIES
STREET: ONE ABBOTT PARK ROAD, CHAD377/AP6D2
                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURENT APPLICATION DATA: US/08/867,611

TILING DATE: U2-UNN-1997
                                             .;
0
                          Pred. No. 0.039;
              100.0%; Preα. ....
+ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: NO.2018.1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/179,896
FILING DATE: VO.08/179,896
FILING DATE: 24-AUG-1990
RIOR APPLICATION NUMBER: US 07/572,822
FILING DATE: 24-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/574,069
FILING DATE: 07-NOV-1990
PRIOR APPLICATION NUMBER: US 07/748,561
FILING DATE: 21-AUG-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,566
FILING DATE: 21-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: POREMBER! PRISCILLA E
REGISTRATION NUMBER: 33,201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4834.US.P6
                                                                                                                                                                                                           RESULT 13
US-08-867-611-58
; Sequence 58, Application US/08867611
; Patent No. 6172189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: 48
TELECOMMUNICATION INFORMATION:
TELEPHONE: 708-937-6365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 512 amino acids
TYPE: amino acid
STRANDEDNESS: single
                       Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: 708-937-636
TELEFAX: 708-937-9556
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                     337 LLFNILGGWV 346
                                                                                          1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE: I
                                                                                             ŏ
                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.0%; Score 55; DB 4; Length 382; Best Local Similarity 100.0%; Pred. No. 0.032; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INCREMATION:
APPLICANT: Chien, David Y.
APPLICANT: Chien, David Y.
APPLICANT: William J.
TITLE OF INVENTION: NANBV Diagnostics and Vaccines
NUMBER OF SEQUENCES: 777
CORRESPONDENCE ADDRESSE:
ADDRESSEE: Chiron Corporation
STREET: 4560 Horton Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 94608-2916
COMPUTER READABLE FORM:
MEDIUW TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN RELEASE #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/444,818
PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Habin, Alisa A.
REGISTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 0110.002
TELECOMMUNICATION:
TELECOMMUNICATION:
TELEFHONE: (508)359-3876
TELEFAX: (508)359-3876
TELEFAX: (508)359-3876
INPORMATION: FOR ESO, ID NO: 68:
SEQUENCE CHARACTERISTICS:
LENGTH: 382 amino acids
TYPE: amino acids
TYPE: amino acids
TYPE: alinear
TOPOLOGY: linear
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/403,590
FILING DATE: 14-MAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0110.002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-444-818-20
; Sequence 20, Application US/08444818
; Patent No. 6150087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 33,895
REGISTRATION NUMBER: 33,895
REFERENCE/DOCKET NUMBER: 01.
TELECOMMUNICATION: TELEPHONE: (508)359-3876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (508)359-3885
INFORMATION FOR SEQ ID NO: 5
SEQUENCE CHARACTERISTICS:
LENGTH: 460 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                   ; MOLECULE TYPE: protein US-08-444-818-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; MOLECULE TYPE: protein US-08-444-818-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111111111
253 LLFNILGGWV 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

100.0%; Score 55; DB 4; Length 460;

Query Match

```
LENGTH: 592 amino acids
TYPE: amino acid
TYPE: amino acid
TYPE: amino acid
TYPE: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-867-611-47
                                                                                                                                                                                                                                    Query Match
Best Local Similarity 100.
Matches 10; Conservative
                        INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: ABBOTT PARK
                                                                                                                                                                                                                                                                                                                                                 463 LLFNILGGWV 472
                                                                                                                                                                                                                                                                                                                           1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 15
US-08-867-611-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE: II COUNTRY:
                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                    ö
                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: DEVARE, SUSHIL G
APPLICANT: DEVARE, SURESH M
APPLICANT: CASEY, JAMES M
APPLICANT: DAMSON, GEORGE J
APPLICANT: DAMSON, GEORGE J
APPLICANT: GUTIERREZ, ROBIN A
APPLICANT: ESTERARY, STEPHEN H
APPLICANT: ESTERARY, STEPHEN R
APPLICANT: REVIEWS IN STEPHEN R
APPLICANT: REPRECHT, KEVIN R
TITLE OF INVENTION: HEPATITIS C ASSAY UTILIZING RECOMBINANT
TITLE OF INVENTION: ANTIGENS
NUMBER OF SEQUENCES: 59
CORRESPONDENCE ADDRESS:
                                                                                                                                                  ö
                                                                                                        ; Score 55; DB 4; Length 512;
; Pred. No. 0.044;
0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: ABBOTT LABORATORIES
STREET: ONE ABBOTT PARK ROAD, CHAD377/AP6D2
CITY: ABBOTT PARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/572,822
FILING DATE: 24-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/614,069
FILING DATE: 07-NOV-1990
PRIOR APPLICATION NUMBER: US 07/748,561
FILING DATE: 21-AUG-1991
PRIOR APPLICATION NUMBER: US 07/748,561
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 07/748,565
FILING DATE: 21-AUG-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/748,566
FILING DATE: 21-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: POREMBSKI, PRISCILLA E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 33,207
REPERDUE/DOCKET NUMBER: 4834.US.P6
TELECOMMUNICATION:
TELEPHONE: 708-937-6365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: APPLICATION NUMBER: US/08/179,896 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/867,611
FILING DATE: 02-UUN-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/646,757
                                                                                                                                                                                                                                                                                                                                          Sequence 47, Application US/08867611 Patent No. 6172189 GENERAL INFORMATION:
                                                                                                        100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: USA
ZIP: 60064-3500
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                   Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-867-611-58
                                                                                                                                                                                                                378 LLFNILGGWV 387
                                                                                                                                                                                          1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                  RESULT 14
US-08-867-611-47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE:
                                                                                                                                                                                                                                    g
                                                                                                                                                                                              õ
```

```
INPORMATION TO SERIOR TO 17:

INPORMATION TO SERIOR TO 17:

ILENGTIN FOR SERIOR TO 18:

ILENGTIN STANDARD STAND
```

```
August 23, 2002, 09:56:51; Search time 78.82 Seconds (without alignments) 12.191 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                           283138
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                       283138 seqs, 96089334 residues
                                                                     - protein search, using sw model
                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                           US-08-854-825-35
55
1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                            seq length: 0
seq length: 200000000
                                                                                                                                                                                               score:
                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                           Minimum DB s
Maximum DB s
                                                                     OM protein
                                                                                                                                                                                              Perfect so
Sequence:
                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                       Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

PIR_71:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Database

	Description	polyprotein - hepa	pr											genome polyprotein	type IV prepilin p	monosaccharide tra	secretion protein	genome polyprotein	pectic enzyme secr	probable sodium/hy	hypothetical prote	probable fimbrail		cal	probable spore ger	hypothetical prote	probable sugar tra	probable membrane	hypothetical prote	glycosyl transfera
SUMMARIES	ID	PS0326	GNWVTC	GNWVCJ	A45573	S18030	GNWVTW	GNWVC3	GNWVCH	S40770	JC5620	C95186	D98053	JQ1303	S70875	T30215	B65083	GNWVJ8	C47755	G83177	H75320	AE0541	S73673	G83401	A96979	T47026	AG0235	AB0666	E69900	D82657
	0B	7	7	7	-	-	Н	-	Н		-	7	7	-	-	7	-	Н	-	~	7	~	~	7	7	7	~	~	~	7
	Query Match Length	492	3010	3010	3010	3010	3010	3011	3011	3011	3014	383	383	3033	290	290	310	3033	283	611	131	359	099	240	368	409	409	114	181	294
of	Query Match	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	80.0	80.0	80.0	78.2	78.2	76.4	76.4	74.5	74.5	72.7	72.7	72.7	70.9	70.9	70.9	0	69.1	6	69.1
	Score	55	55					52		22	52	44	44	44	43	43	42	42	41	41	40	40	40	39	39	39	39	38	38	38
	Result No.		7	٣	4	5	9	7	ω	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29

C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Species: hepatitis C virus
C;Decies: hepatitis C virus
S; Fujita, J; Onishi, E
J; Virol. 65, 1105-1113, 1991
A;Title: Structure and organization of the hepatitis C virus genome isolated from hum
A;Reference number: A38465
A;Accession: A38465
A;Accession: A38465
A;Accession: A38465
A;Residues: 1-3010
C;Acyperigenemic RNA
A;Residues: 1-3010
C;Acyperigenemic RNA
A;Residues: BMBL:M58335; NID:g329770; PIDN:AAA72945.1; PID:g329771
C;Superfamily: hepatitis C virus genome polyprotein
C;Superfamily: hepatitis C virus genome polyprotein
C;Kywords: ATP; capsid protein C #status predicted <CPC>
F;116-191/Product: envelope protein M #status predicted <MEE>
F;116-191/Product: major envelope protein E #status predicted <MEE>
F;390-729/Product: monstructural protein NS2 #status predicted <NS2>
F;30-1006/Product: nonstructural protein NS2 #status predicted <NS2>

genome polyprotein - hepatitis C virus N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstrupprotein NS4a; nonstructural protein NS4b; nonstructural protein NS4b;

qq δ

sodium-dependent t leukotriene-A4 hyd peptide synthetase hypothetical prote hypothetical prote type III secretion escR [imported] - hypothetical prote tropinesterase hom probable oligopept peptide ABC transp probable two-compo multidrug-efflux t probable cation ef alkylglycerone-pho related to Na+/H+-	RESULT 1 PS0326
G82096 S65947 S734165 S733168 G801201 G801201 C801201 C713051 F816699 T36699 T36699 T36699 T36699 T36699	ALIGNMENTS RESULT 1 PS0326 PS0326 PS0326 PS0326 C.Species: hepatitis C virus (isolate Fla) (frago C.Species: hepatitis C virus C.Species: nepatitis C virus C.Species: nepatitis C virus C.Species: 30-Jun-1992 #sequence_revision 30-Jun-1992 C.Accession: PS0326 R:Li, J.S.; Tong, S.P.; Vitvitski, L.; Lepot, D.; T Gene 105, 167-172, 1991 A.Title: TWO French genocypes of hepatitis C virus: A.Reference number: PS0326, MUID:92039028 A.Accession: PS0326 A.Accessio
000000000000000000000000000000000000000	re Lsk Of Jib
4 6111 4 9076 1306 2208 2217 2217 2217 318 318 426 420 450 653	atitis C virus (tis C virus 26 S.P.; Vitvitski c, 1991 c, 9enotypes of r: PS0326; MUID: 26 genomic RNA cLIJ> s: GB:M6020 no f the nucleo patitis C virus rotein larity 100.0%; Conservative
669911 6697133131314 66773331314 6677336 6677336 6677336 677336 677336 677336 677336 677336 677336 677336 677336 67736 6	hepatitis C patitis C pati
338 337 337 337 337 337 337 337	in - he in bepat 0-Jun-1 0-Jun-1 0-Jun-1 1-1 0-Jun-1 1-1 1-1 1-1 1-1 1-1 1-1 1-1 1-1 1-1
0 H O K A A A A A A A A A A A A A A A A A A	RESULT 1 PS0326 polyprotein - hepatitis C virus C;Species: hepatitis C virus C;Species: hepatitis C virus C;Cate: 30-Jun-1992 #sequence_re C;Accession: PS0326 R;Li, J.S.; Tong, S.P.; Vitvitsk Gene 105, 167-172, 1991 A;Tille: Two French genotypes of A;Reference number: PS0326; MUID A;Accession: PS0326 A;Molecule type: genomic RNA A;Residues: 1-492 CLIJ> A;Cross-references: GB:M60220 A;Note: this sequence correspond A;Note: translation of the nucle C;Superfamily: hepatitis C virus C;Keywords: polyprotein Query Match Best Local Similarity 100.0% Matches 10; Conservative

```
Cydace: 17-749, 2000 #sequence_revision 17 may 2000 #cext__inauge 15 Jun; 2001
Cydaces: 23, 39-53, 1992
R; Tanaka, T.; Kato, N.; Nakagawa, M.; Ootsuyama, Y.; Cho, M.J.; Nakazawa, T.; Hijikat
V; Title: Wolecular cloning of hepatitis C virus genome from a single Japanese carrier
A; Reference number: A45573; MUD: 92295714
A; Accession: A45573
A; Residues to Paramany
A; Molecule type: DNA
A; Residues: 1-3010 < TANA
A; Residues: Carrier Grom NOBI backbone (NCBIN:106206, NCBIP:106207)
C; Superimental source: HCV-JT
A; Note: sequence extracted from NOBI backbone (NCBIN:106206, NCBIP:106207)
C; Superimental source: HCV-JT
C; Superimental source: HCV-JT
C; Superimental source: The genome Polyprotein
C; Keywords: ATP; Glycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein; C; Reywords: ATP; Glycoprotein; hydrolase; nucleotide de Estatus predicted <NSI>F; 1007-101/Fyroduct: envelope protein NSI #status predicted <NSI>F; 730-1006/Product: nonstructural protein NSI #status predicted <NSI>F; 730-1006/Product: nonstructural protein NSI #status predicted <NSI>F; 1230-1237/Region: nucleotide-binding motif A (P-loop)
F; 1312-1317/Region: nucleotide-binding motif B (P-loop)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A. Reference number: $18028
A. Reference number: $18028
A. Reference number: $18028
A. Reference number: $18038
A. Recession: $18030
A. Molecule type: genomic RNA
A. Residues: 1-3010 cHON>
A. Residues: 1-3010 cHON>
A. Residues: 1-3010 cHON>
A. Residues: 1-310 cHON>
A. Residues: 1-3110 cHON>
A. Residues: 1-3110 cHON>
A. Residues: 1-3110 cHON>
A. Resperimental source: isolate JR1 from an individual
B. Honda, M.; Kaneko, S.; Unoura, M.; Kobayashi, K.; Murakami, S.
A. Reference analysis of putative structural regions of hepatitis C virus isolat
A. Reference number: A48332; MUID:93119270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome polyprotein - hepatitis C virus (isolate JK1)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C;Species: hepatitis C virus
A;Variety: isolate JK1
C;Date: 19-May-2000 #text_change 23-Mar-2001
C;Accession: S18030; S33570; A48332; S18020;
R;Honda, M.; Kaneko, S.; Masashi, U.; Kobayashi, K.; Murakami, S.
submitted to the EMBL Data Library, September 1991
                (nonstru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: genomic RNA
A;Residues: 1-547,'T',549-621,'V',623-624,'S',626-652,'DL',655-761,'T',763-782 <HOW>
A;Cross-references: EMBL:X61591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            residue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A) Note: this sequence is inconsistent with the nucleotide translation A; Note: the authors translated the codon AGG for residue 43 as Pro, TGG for residue as Trp, and TTC for residue 771 as Ser A; Note: sequence extracted from NOBI backbone (NCBIN:121747, NCBIP:121748) C; Superfamily: hepatitis C virus genome polyprotein C; Superfamily: hepatitis C virus genome polyprotein C; Keywords: ATP; glycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
        (EC 3.4.21.98)
in NS5
                                                                                         C.Species: hepatitis C virus
C.Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
            l;Contains: capsid protein C; envelope protein M; hepacivirin (EC protein NS4a; nonstructural protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 55; DB 1;
Pred. No. 0.29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: S33570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Restouces: 1.94010 (ARAI)
A; Cross-references: GB:D90208; NID:9221610; PIDN:BAA14233.1; PID:9221611
B; Kato, N.; Ohkoshi, S.; Shimotohno, K.
Proc. Jpn. Acad. 659, 219-223, 1989
A; Title: Japanese isolates of the non-A, non-B hepatitis viral genome show sequence variances in the sequence number: P80085
A; Accession: P80086
A; Molecule type: genomic RNA
A; Residues: 2650-2707 (ARA2)
A; Experimental source: Japanese isolate
C; Comment: The cleavage sites of this polyprotein have not been determined.
C; Comment: The cleavage sites of this polyprotein binding; P-loop; polyprotein; Schort C; Superfamily: hepatitis C virus genome polyproteid binding; P-loop; polyprotein; C; Keywords: ATP; glycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein; F; 2-115/Product: envelope protein M *status predicted (EBNA)
F; 190-729/Product: major envelope protein NSI *status predicted (NS2)
F; 1007-1615/Product: nonstructural protein NSI *status predicted (NS2)
F; 1007-1615/Product: hepacivirin *status predicted (NS3)
F; 1320-1337/Region: nucleotide-binding motif A (P-loop)
F; 1312-1317/Region: nucleotide-binding motif A (P-loop)
                                                                                                                  F;1316-1319/Region: DEXH motif
F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1616-1862/Product: nonstructural protein NS4b #status predicted <N4B>
F;1863-2013/Product: nonstructural protein NS5 #status predicted <NS5>
F;2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,250,305,325,417,423,430,448,532,540,556,576,623,645,1213,1255,2041,2077,22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nonstructura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C; Species: hepatitis C virus
C; Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 19-Jan-2001
C; Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 19-Jan-2001
C; Accession A39253; Ps0086
R; Kato, N.: Hijkkata, M.; Ootsuyama, Y.; Nakagawa, M.; Ohkoshi, S.; Sugimura, T.; Shimot Proc. Natl. Acad. Sci. U.S.A. 87, 9524-9528, 1990
A; Title: Molecular cloning of the human hepatitis C virus genome from Japanese patients A; Reference number: A39253; MUID:91088550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F.1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F.1863-2013/Product: nonstructural protein NS4b #status predicted <NAB>
F.2014-3010/Product: nonstructural protein NS5 #status predicted <NS5>
F.196,209,234,250,305,325,417,423,430,448,532,556,576,623,645,1213,1255,2041,2077,2240,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genome polyprotein - hepatitis C virus (strain J)
N;Contains: capsid protein C; envelope protein M; major envelope protein E;
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                   55; DB 1; Length 3010; No. 0.29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ch 100.0%; Score 55; DB 1; Length 3010; Similarity 100.0%; Pred. No. 0.29; 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
F;1007-1615/Product: hepacivirin #status predicted <NS3:
F;1230-1237/Region: nucleotide-binding motif A (P-loop)
F;1312-1317/Region: nucleotide-binding motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genome polyprotein - hepatitis C virus (strain JT)
                                                                                                                                                                                                                                                                                                                                                                                                               Ouery Match 100.0%; Score 55; DE Best Local Similarity 100.0%; Pred. No. 0.2 Matches 10; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F;1312-1317/Region: nucleotide-binding motif F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: genomic RNA A; Residues: 1-3010 <KAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A45573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
```

se

10:30:38

23

Aug

Fri

```
A; Residues: 1-3011 CCHO>
A; Cross-references: GB:M62321; NID:g329873; PIDN:AAA45676.1; PID:g329874
B; Chan. S.W.; McOmish, F.; Holnes, E.C.; Dow, B.; Peutherer, J.F.; Follett, E.; Yap, J. Gen. Virol. 73, 1131-1141, 1992
A; Title: Analysis of a new hepatitis C virus type and its phylogenetic relationship t A; Reference number: PQ0393; MUID:g2268871
A; Accession: PQ0403
A; Molecule type: genomic RNA
A; Residues: 1577-1633 CCHA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A Residues: 1577-1633 <CR2>
A Residues: 1577-1633 <CR2>
A Residues: 1577-1633 <CR2>
A Residues: 1577-1633 <CR2>
A Experimental Source: isolates E-bl7
C Superfamily: hepatitis C virus genome polyprotein
C Reywords: ATP; capsid protein; envelope protein; glycoprotein; hydrolase; nonstruct
E;1-115/Product: capsid protein M #status predicted <CRC>
F;116-191/Product: envelope protein M #status predicted <MEE>
F;307-389/Product: monstructural protein NSI #status predicted <NSI>
F;307-1006/Product: nonstructural protein NSI #status predicted <NSI>
F;1007-1615/Product: hepacivirin #status predicted <NS2>
F;1307-1307-1615/Product: hepacivirin #status predicted <NS3>
F;1312-1317/Region: nucleotide-binding motif A (P-loop)
F;1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome polyprotein - hepatitis C virus (strain H)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstru
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C;Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Description: Genomic structure of the human prototype strain H of hepatitis C virus A; Reference number: A36814
A; Accession: A36814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: genomic RNA
A; Residues: 1-3011 < LTC>
A; Cross-references: GB:M6463; NID:g329737; PIDN:AAA45534.1; PID:g329738
A; Inchauspe, G.; Zebedee, S.; Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M.
Proc. Natl. Acad. Sci. U.S.A. 88, 10222-10296, 1991
A; Title: Genomic structure of the human prototype strain H of hepatitis C virus: comp
A; Reference number: A41546; MUID:9205256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;1616-1862/Product: nonstructural protein NS4a #status predicted <NAA>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <NAB>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2077
                                                                                                           C.; Gallegos, C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Note: host Homo sapiens (man)
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
C;Accession: A36814; A41546
K;Inchauspe, G;Zebedee, S;Lee, D.H.; Sugitani, M.; Nasoff, M.; Prince, A.M. submitted to GenBank, July 1992
                      C; Date: 30-Sep-1992 #sequence_revision 30-Sep-1992 #text_change 19-Jan-2001
                                                          C;Accession: À39166; PQÓ403; PQ0404
R;Choo, O.L.; Richman, K.H.; Han, J.H.; Berger, K.; Lee, C.; Dong, C. Proc. Natl. Acad. Sci. U.S.A. 88, 2451-2455, 1991
A;Title: Genetic organization and diversity of the hepatitis C virus. A;Reference number: A39166; MUID:91172826
A;Reference number: A39166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 55; DB 1; Length 3011; 100.0%; Pred. No. 0.29; 0; Indels ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Contents: annotation
A;Note: neither amino acid nor nucleotide sequence is given
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E-b16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Experimental source: isolates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: PQ0404
A; Status: preliminary
                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Richen, P.1.; Lin, M.H.; Tai, K.F.; Liu, P.C.; Lin, C.J.; Chen, D.S.

Virology 188, 102-113, 1992

A;Title: The Tawanese hepatitis C virus genome: sequence determination and mapping the A;Title: The Tawanese hepatitis C virus genome: sequence determination and mapping the A;Reference number: A40244

A;Reference: A1010

CHE>

A;Reference: A40244

A;Reference: A6024

A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N:Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructur protein NS4a; nonstructural protein NS4b; nonstructural protein NS5 C; Species: hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (As
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genome polyprotein - hepatitis C virus (strain Taiwan)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu
protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
F;2-115/Product: capsid protein C *status predicted <CPC>
F;116-191/Product: envelope protein M *status predicted <EPM>
F;116-191/Product: envelope protein E *status predicted <MED>
F;130-1399/Product: envelope protein NS1 *status predicted <MED>
F;300-729/Product: nonstructural protein NS1 *status predicted <NS1>
F;730-1006/Product: nonstructural protein NS2 *status predicted <NS2>
F;1307-105/Product: nonstructural protein motif A (P-loop)
F;1317-1317/Region: nucleotide-binding motif B
F;1316-1319/Region: DEXH motif
F;1316-1319/Region: product: nonstructural protein NS4# *status predicted <NAA>
F;1863-2013/Product: nonstructural protein NS5 *status predicted <NAB>
F;2014-3010/Product: nonstructural protein NS5 *status predicted <NS5>
F;196,209,234,250,305,417,423,448,532,540,556,576,623,645/Binding site: carbohydrate (F)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C,Species: heparitis C virus
A;Note: host Homo sapiens (man)
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 55; DB 1; Length 3010; 100.0%; Pred. No. 0.29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 3010;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genome polyprotein - hepatitis C virus (strain HCV-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 55; DB 1;
Pred. No. 0.29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; ; ; 100.0%; ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Accession: A40244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GNWVC3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
```

ö

Gaps

se

```
A; Modesules 1965620
A; Molecule type: mRNA
A; Residues: 1-3014 (CHA>
A; Residues: 1-3014 (CHA>
A; Residues: 1-3014 (CHA>
A; Coss-references: GB:Y13184
A; Experimental source: genotype 5a, which predominates in South Africa
A; Experimental source: genotype 5a, which predominates in South Africa
A; Note: the translation of the nucleotide sequence is not complete in this paper C; Superfamily: hepatitis C virus genome polyprotein
C; Keywords: ATP; glycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein; C; Keywords: ATP; glycoprotein C * **status predicted <EPA>
F; 106-191/Product: envelope protein M **status predicted <EMS>
F; 389-7Product: major envelope protein B **status predicted <MED>
F; 380-730/Product: nonstructural protein NSI **status predicted <NSI>F; 31-1007/Product: nonstructural protein NSI **status predicted <NSI>F; 1108-1539/Region: nucleotide-binding motif A (P-loop)
F; 1131-1138/Region: nucleotide-binding motif B
F; 1117-1120/Region: DEXH motif-
                                                                                                                                                                                              N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstruprotein NS4a; nonstructural protein NS4b; nonstructural protein NS5 C; Species: hepatitis C virus C; Decisis: hepatitis C virus C; Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001 C; Accession: JC5620
                                                                                                                                                                                                                                                                                                                                                                                            Richamberlain, R.W.; Adams, N.J.; Taylor, L.A.; Simmonds, P.; Elliott, R.M. Blochem, Biophys. Res. Commun. 236, 44-49, 1997
A;Title: The complete coding sequence of hepatitis C virus genotype 5a, the predomina A;Reference number: JC5620; MUID:97366593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C; Species: Streptococcus pneumoniae
C;Date: 03-Aug-2001 #sequence_revision 03-Aug-2001 #text_change 03-Aug-2001
C;Accession: C95186
C;Accession: C95186
R;Tettellin, H; Nelson, K.E.; Paulsen, I.T.; Eisen, J.A.; Read, T.D.; Peterson, S.; H on, J.D.; Umayam, L.A.; White, O.; Salzberg, S.L.; Lewis, M.R.; Radune, D.; Holtzappl nson, T.; Hickey, E.K.; Holt, I.E.
Science 293, 498-506, 2001
A;Authors: Loftus, B.J.; Yang, F.; Smith, H.O.; Venter, J.C.; Dougherty, B.A.; Morris A;Tetle: Complete Genome Sequence of a virulent isolate of Streptococcus pneumoniae. A;Recersion: C95186
A;Status: preliminary
A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Residues: 1-383 <KUR>
A;Cross-references: GB:AE005672; PIDN:AAK75684.1; PID:914973091; GSPDB:GN00164; TIGR:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hypothetical protein SP1600 [imported] - Streptococcus pneumoniae (strain TIGR4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F;1617-1863/Product: nonstructural protein NS4a #status predicted <N4A> *1.864-2014/Product: nonstructural protein NS4b #status predicted <N4B> F;2015-3014/Product: nonstructural protein NS5 #status predicted <N8S> F;2010-2249/Region: interferon sensitivity determining #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 55; DB 1; Length 3014; Pred. No. 0.29;
                                                                                                                                                                  genome polyprotein - hepatitis C virus (isolate EUH1480)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 44; DB 2;
Pred. No. 3.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A) Experimental source: strain TIGR4 C, Genetics:
A, Gene: SP1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80.0%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 70.0
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1808 LLFNILGGWV 1817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Across references: GB:000831; NID:9221511; PIDN:BAA00705.1; PID:9221512
A:Experimental source: isolate HC-J1
A:Experimental source: isolate HC-J1
A:Experimental source: isolate HC-J1
C:Superfamally: hepatitis C virus genome polyprotein
C:Superfamally: hepatitis C virus genome polyprotein
C:Keywords: ATP: 91ycoprotein; hydrolase; nucleotide binding; P-loop; polyprotein; E:2-115/Product: capsid protein C *status predicted <PP>CF:116-191/Product: envelope protein B *status predicted <PP>F:192-389/Product: major envelope protein B *status predicted <NSI>F:390-729/Product: nonstructural protein NSI *status predicted <NSI>F:730-1006/Product: nonstructural protein NSI *status predicted <NSI>F:1007-1615/Product: hepacivirin *status predicted <NSI>F:1230-1237/Region: nucleotide-binding mobil B *(P-loop)
E:1312-1317/Region: nucleotide-binding motif B *(P-loop)
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein; glycoprotein; hydrolase; nonstructura
E; 1-115/Product: capsid protein C *status predicted <CPC>
E; 1-115/Product: capsid protein M *status predicted <CPC>
E; 116-191/Product: envelope protein M *status predicted <MEE>
E; 192-389/Product: major envelope protein B *status predicted <NSI>
E; 390-729/Product: nonstructural protein NS1 *status predicted <NSI>
E; 1007-1615/Product: nonstructural protein NS2 *status predicted <NS2>
E; 1300-137/Region: nucleotide-binding motif A (P-loop)
E; 1316-1319/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                F;1616-1862/Product: nonstructural protein NS4a #status predicted <N4A>
F;1863-2013/Product: nonstructural protein NS4b #status predicted <N4B>
F;2014-3011/Product: nonstructural protein NS5 #status predicted <NS5>
F;196,209,234,305,325,417,423,430,448,476,532,540,556,576,623,645,1213,1255,2041,2240,23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N:Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructu protein NS4s, nonstructural protein NS5
protein NS4s, nonstructural protein NS4b; nonstructural protein NS5
C;Species: hepatitis C virus
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 19-Jan-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: EMBL:D10749; NID:g221586; PIDN:BAA01582.1; PID:g221587
R;Okamoto, H.; Okada, S.; Sugiyama, Y.; Yotsumoto, S.; Tanaka, T.; Yoshizawa, H.; Tsuda, A;Dh. J. Exp. Med. 60, 167-177, 1990
A;Title: The 5'-terminal sequence of the hepatitis C virus genome.
A;Reference number: PC1284; MUID:91013116
A;Accession: PC1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <N4A>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein NS4a #status predicted <N4A:
protein NS4b #status predicted <N4B:
protein NS5 #status predicted <NS5>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1; Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 55; DB 1; Length 3011; 100.0%; Pred. No. 0.29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 55; DB 1,
Pred. No. 0.29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted to the EMBL Data Library, March 1992 A; Reference number: $40770 A; Accession: $40770 A; Molecule type: genomic RNA A; Molecule type: genomic RNA A; Residues: 1-3011 
    COMA>

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genome polyprotein - hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ch 100.0%;
1 Similarity 100.0%;
10; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F;1316-1319/Region: DEXH motif
F;1616-1862/Product: nonstructural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;1863-2013/Product: nonstructural F;2014-3011/Product: nonstructural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: genomic RNA A; Residues: 1-513 <OK2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Accession: $40770; PC1285
R; Okamoto, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

ö

Gaps

ö

Indels

ö

ö

Gaps

;

Indels

ö

Length 383;

```
C; Accession: T30215
R; Aparicio, J.F.; Molnar, I.; Schwecke, T.; Koenig, A.; Haydock, S.F.; Khaw, L.E.; St Gene 169, 9-16, 1996
A; Title: Organization of the biosynthetic gene cluster for rapamycin in Streptomyces A; Reference number: 220782; MUID:96186896
A; Accession: T30215
                                                                                                                                                                                                                                                                                                                                                                                                                          cluster: co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PID:g663118
Library, January 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   shown
                                                                                                                                                                                                                                                                      C;Specias: Aeromonas hydrophila
C;Specias: Aeromonas hydrophila
C;Jaccesion: 570875
R;Pepe, C.M.; Eklund, M.W.; Strom, M.S.
Mol. Microbiol. 19, 857-869, 1996
A;Title: Cloring of an Aeromonas hydrophila type IV pilus biogenesis gene clasquired for extracellular protein secretion.
A;Reference number: S70872; MUID:96417863
A;Reference number: S70872; MUID:96417863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Species: Streptomyces hygroscopicus
C;Date: 22-Oct-1999 #sequence_revision 22-Oct-1999 #text_change 11-May-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A)CICSS-IEFerences: EMBL:X86780; NID:9987088; PID:9987089; PIDN:CAA60449.1
C)Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           monosaccharide transport protein - Streptomyces hygroscopicus (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary; nucleic acid sequence not shown; translation not A;Molecule type: DNA
                                                                                                                                                                                                   tapD - Aeromonas hydrophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Residues: Î-290 <PEP>
A;Cross-references: EMBL:U20255; NID:g695159; PIDN:AAC43998.1;
A;Note: the nucleotide sequence was submitted to the EMBL Data
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S-adenosylmethionine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                             type IV prepilin peptidase (EC 3.4.99.-) tapD - Aeromonas N.Alternate names: prepilin type IV peptidase
N.Contains: type IV pilin N-methyltransferase (EC 2.1.1.-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 43;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 43;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Search completed: August 23, 2002, 09:56:53 Job time: 143 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Superfamily: type IV prepilin peptidase
C;Keywords: hydrolase; methyltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78.2%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       78.2%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                :| ||||||:
1811 ILLNILGGWL 1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match
Best Local Similarity
7; Conservē
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |||||:|||:|
|LEFNLLGGEV 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <APA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :||| |||:
ILFNPLGGWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-290 <A
                                                                                                                                                                                          type IV prepilin pe
N;Alternate names:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Note: orf22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: tapD
                                                                                                                                        14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                    Pp
  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Óγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Okamoto, H.; Okada, S.; Sugiyama, Y.; Kurai, K.; Iizuka, H.; Machida, A.; Miyakawa, Y. J. Gen. Virol. 72, 2697-2704, 1991
J. Gen. Virol. 72, 2697-2704, 1991
A;Title: Nucleotide sequence of the genomic RNA of hepatitis C virus isolated from a hum A;Reference number: JQ1303; MUID:92044440
A;Accession: JQ1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genome polyprotein - hepatitis C virus (isolate HC-J6)
N;Contains: capsid protein C; envelope protein M; hepacivirin (EC 3.4.21.98) (nonstructup protein NS4a; nonstructural protein NS4b; nonstructural protein NS5
C;Species: hepatitis C virus
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;1620-1866/Product: nonstructural protein NS4a #status predicted <NAA>
F;1867-2017/Product: nonstructural protein NS4b #status predicted <NAB>
F;2018-3033/Product: nonstructural protein NS5 #status predicted <NOS>
F;196,209,234,305,325,417,423,430,448,477,5NS, #status predicted <NOS>
                                                                                                                                                       hypothetical protein MFS transporter [imported] - Streptococcus pneumoniae (strain R6) C; Species Streptococcus pneumoniae C; Date: 22-Oct-2001 #sequence_revision 22-Oct-2001 #text_change 22-Oct-2001 C; Accession: D98053 R; Hoskins, J.A.; Alborn Jr., W.; Arnold, J.; Blaszczak, L.; Burgett, S.; DeHoff, B.S.; Be, R.; LeBlanc, D.J.; Lee, L.N.; Lefkowitz, E.J.; Lu, J.; Matsushima, P.; McAhren, S.; N. Y, P.; Sun, P.H.; Winkler, M.E. J. Bacteriol. 183, 5709-5717, 2001 A; Aththors: Yang, Y.; Young-Bellido, M.; Zhao, G.; Zook, C.; Baltz, R.H.; Jaskunas, S.R.; A; Ritle: Genome of the Bacterium Streptococcus pneumoniae Strain R6. A; Reference number: A97872; MUID:21429245; PMID:11544234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 serine proteinase; transm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: GB:AE007317; PIDN:AAL00257.1; PID:g15459110; GSPDB:GN00174 C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A MOLECULE type: genomic RNA
A Residues: 1-303 < OKA>
A Cross-references: GB:D00944; NID:g221650; PIDN:BAA00792.1; PID:g221651
A Experimental source: isolate HC-J6 from a Japanese individual
C; Superfamily: hepatitis C virus genome polyprotein
C; Superfamily: hepatitis C virus genome polyprotein
C; Reywords: AFP; glycoprotein: hydrolases, P-loop; polyprotein; serine pro
F; 2-115/Product: capsid protein C *status predicted < CPC>
F; 116-19/Product: major envelope protein E *status predicted < NEE>
F; 390-733/Product: nonstructural protein NS2 *status predicted < NS2>
F; 1011-1619/Product: nonstructural protein NS2 *status predicted < NS2>
F; 1121-1619/Product: nonleotide-binding motif B
F; 1320-1323/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 80.0%; Score 44; DB 1; Length 3033; Best Local Similarity 70.0%; Pred. No. 27; Matches 7; Conservative 2; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 44; DB;
Pred. No. 3.3;
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80.0%;
70.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                             1:1:1||||:
359 LVFSILGGWL 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1:|:||||:
359 LVFSILGGWL 368
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Residues: 1-383 <KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
les 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: MFS transporter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Status: preliminary
A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Accession: J01303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S:
Matches 7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J01303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
ð
                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
```

us-08-854-825-35.rpr

```
GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

Run on:

August 23, 2002, 09:55:25; Search time 37 Seconds (without alignments) 10.465 Million cell updates/sec

US-08-854-825-35 55 1 LLFNILGGWV 10 Title: Perfect score: Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

105224 seqs, 38719550 residues Searched:

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 08
Maximum Match 1008
Listing first 45 summaries

SwissProt_40:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	P26663 h	h genome	Q00269 h genome po	h genome	h genome	h genome	aeromonas	P26660 h genome po	aeromonas	-			P75291 mycoplasma		_	Q9f714 chlorobium		Q9v778 drosophila			P19811 equine arte	rice	rice	bacil			000116 homo sapien	P77504 escherichia		P09849 oryctolagus		Q02401 rattus norv	P23005 bos taurus
SUMMARIES	ID		POLG_HCVJA	POLG_HCVJT	POLG_HCVTW	POLG_HCV1	POLG_HCVH	LEP4_AERSA	POLG_HCVJ6	LEP4_AERHY	PPPA_ECOLI	POLG_HCVJ8	LEP4_ERWCH	SGAT_MYCPN	LKHA_HUMAN	YB12_MYCPN	BCHL_CHLTE	ADAS_CAEEL	ADAS_DROME	CLPP_MAIZE	UHPT_CHLMU	RPOA_EAV	VNCA_RSVM	VNCA_RSVT	COTE_BACSU	OPDE_PSEAE	YG90_HAEIN	ADAS_HUMAN	YBBP_ECOLI	YD30_YEAST	LPH_RABIT	LPH_HUMAN	LPH_RAT	CRGF_BOVIN
	Length DB	3010			3010 1									. ,					631 1		. ,	3175 1	•	178 1	•					989 1	926	1927 1	1928 1	173 1
of	Ouery Match 1	0	100.0	100.0	100.0	100.0	100.0	80.0	80.0	78.2	76.4	76.4	74.5	72.7	69.1	67.3	67.3	67.3	67.3	65.5	65.5	65.5	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	61.8
	Score	55	52	22	52	52	55	44		43			41	40	38	37	37	37	37	36	36	36	32	35	32	35	35	32	35	32	35	35	32	34
	Result No.	1	~	m	4	S	9	7	œ	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

zz43 squalus aca			8246 escherichia	eqd2 rattus norv	09z7n9 chlamydia p	6818 influenza a	1744 influenza a	1745 influenza a	3473 influenza a	3484 influenza a	6820 influenza a
60	P7	95	P2	60	60	PO	60	60	P0	P0	P0
QUAC	YNY3	ETJA	OLI	AT	HLPN	ABAN	AKIT	ANII	ANT6	ARI5	ATOK
NU6M_S	LEP4_S	YB77_M	BCR_EC	NFF2_R	UHPT_CHLPN	NRAM_I	NRAM_I	NRAM_I	NRAM I	NRAM_I	NRAM_IATOK
7	7	-	7	Н	Н	Н	,	Н	_	_	٦
173	569	334	386	417	455	469	469	469	469	469	469
ω.	8.	8.	8.	8.	61.8	80.	ω.	80.	ω.	ω.	ω.
61	61	61	61	61	61	61	61	61	61	61	61
.34	34	34	34	34	34	34	34	34	34	34	34
34	32	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NONSTRUCTURAL PROTEIN NS1/E2 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Core protein; Coat protein; Envelope protein; Helicase; ATP-binding;
Transmembrane; Nonstructural protein; Hydrolase; Serine protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
LIFUPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MAJOR ENVELOPE PROTEIN E (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                        SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAPSID PROTEIN C (POTENTIAL). MATRIX PROTEIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
CHARGE RELAY SYSTEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
                                                                                                                                                                                                                                                                                        InterPro; IPR001410; DEAD.
InterPro; IPR002511; HCV_NS1.
InterPro; IPR002518; HCV_NS2.
InterPro; IPR004109; HCV_NS3.
InterPro; IPR001405; HCV_NS4a.
InterPro; IPR001406; HCV_NS4b.
InterPro; IPR002166; HCV_NS4b.
InterPro; IPR002166; HCV_Caps.
InterPro; IPR002512; HCV_Caps.
InterPro; IPR002512; HCV_Caps.
InterPro; IPR002519; HCV_Caps.
InterPro; IPR002519; HCV_Caps.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1. Pfam; PF01539; HCV_env; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00998; HCV_RdRP; 1.
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                             EMBL; M58335; AAA72945.1; -.
                                                                                                                                                                                                         PIR; A38465; GNWVTC.
PDB; 1A1Q; 25-MAR-98.
PDB; 1JXP; 14-JAN-98.
PDB; 1NS3; 08-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1083
11107
1165
11237
1237
1319
196
209
                                                                                                                                                                                                                                                                MEROPS; S29.001; -. MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF01539; H
Pfam; PF01560; H
Pfam; PF02907; H
Pfam; PF01006; H
Pfam; PF01001; H
Pfam; PF01506; H
Pfam; PF01506; H
Pfam; PF01506; H
Pfam; PF01506; H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3D-structure.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDINE-91192160; PubMed=1849488;
MEDLINE-91192160; PubMed=1849488;
Atato N., Hijikata M., Nakagawa M., Ootsuyama Y., Muraiso K.,
Akato N., Hijikata M., Nakagawa M., Ootsuyama Y., Muraiso K.,
Akato N., Hijikata M., Nakagawa M., Ootsuyama Y., Muraiso K.,
The molecular structure of the Japanese hepatitis C viral genome.";
FEBS Lett. 280:325-328(1991).
THE SMALL PROTEINS NS2A, NS2B, NS4B AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
C-1- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in Pl and Ser or Ala in Pl.
C-1- SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSIB COVERED BY A LIPOPROTEIN BNYELOPE CONSISTS OF TWO PROPERTY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7: Nonstructural protein MS2 (P21)
(EC 3.4.22..); Protesse/hellcase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (P27); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.777.48)].
Hepatitis C virus (isolate Japanese) (HCV):
Viruses; SSRNA positive-strand viruses, no DNA stage; Elaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPLEX OF
                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                      (POTENTIAL).
                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kato N., Hijikata M., Ootsuyama Y., Nakagawa M., Ohkoshi S., Sugimura T., Shimotohno K.; Molecular cloning of the human hepatitis C virus genome from Japanese patients with non-A, non-B hepatitis.; Proc. Natl. Acad. Sci. U.S.A. 87:9524-9528(1990).
                                                                                                                                                                                                                                                                                                                                                                                      Score 55; DB 1; Length 3010;
Pred. No. 0.15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                                                                                                                                                                                                                                                                         INKED (GLCNAC. . .) (POT
F8422D5ECCFDFD9C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A PROTEIN C AND MRNA.
                                                                         GLCNAC.
(GLCNAC.
(GLCNAC.
(GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                 (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
MEDLINE-91088550; PubMed-2175903;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
0
                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
448
532
540
556
576
623
645
2041
2041
2240
2529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
es 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=11116;
448
532
540
556
623
6623
645
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
70041
7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVJA
P26662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus
                                                                                                                                                   CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                     CARBOHYD
                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLG_HCVJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
g
```

```
and for commercial
                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN C (POTENTIAL).
MATRIX PROTEIN (POTENTIAL).
NAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

INIT_MET 1 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA993794F46DB185 CRC64;
      Usage by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC. . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
modified and this statement is not removed. entities requires a license agreement (See hor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED (N-LINKED (N-LINK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                InterPro; IPR001490, HCV_NS4D.
InterPro; IPR001490, HCV_NS4D.
InterPro; IPR002668; HCV_NS4D.
InterPro; IPR002523; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR002521; HCV_Capsid.
InterPro; IPR001503; HCV_Capsid.
InterPro; IPR001650; Helicase_C.
Pfam; PP01543; HCV_Capsid.
IPfam; PP01540; HCV_Capsid.
IPfam; PP01539; HCV_Capsid.
IPfam; PP01539; HCV_NS2; I.
Pfam; PP01539; HCV_NS2; I.
Pfam; PP01001; HCV_NS3; I.
Pfam; PP01001; HCV_NS3; I.
Pfam; PP01001; HCV_NS4s; I.
Pfam; PP01001; HCV_NS4s; I.
Pfam; PP01001; HCV_NS5s; I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3010 AA; 327017 MW;
                                                                                                                                                                                                                   HCV_NS1.
HCV_NS2.
HCV_NS3.
HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
                                                                                     EMBL; D90208; BAA14233.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProDom; PD186062; HCV_NSI
SMART; SM00492; HELICC3;
                                                                                                                                                                                               InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                              InterPro; IPR002518;
                                                                                                                                                                                                                                                              InterPro; IPR004109;
InterPro; IPR000745;
                                                                                                                                                    MEROPS; S29.001; -.
                                                                                                                                P26663; 1JXP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                        ö
                                                                                                                                                                                                                          Ol-APR-1993 (Rel. 25, Created)
Ol-APR-1993 (Rel. 25, Last sequence update)
Ol-APR-1993 (Rel. 25, Last sequence update)
Ol-APR-1993 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (N81); Protein E1 (GP32) (GP35); Envelope glycoprotein E2
(EC 3.4.22.-); Protease/helicase N33 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NSA (P45; Nonstructural protein
NSAB (P27); Nonstructural protein NSA (P45); Nonstructural protein
NSAB (P60) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatitis C virus (isolate HC-JT) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SECUENCE FROM N.A.
MEDLINE=92295714; PubMed=1318627;
Tanaka T., Kato N., Nakagawa M., Ootsuyama Y., Cho M.J.,
Nakazawa T., Hijikata M., Ishimura Y., Shimotohno K.;
"Moleoular cloning of hepatitis C virus genome from a single Japanese
"ancier: sequence variation within the same individual and among
infected individuals.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VILLUS RES. 23:39-53 (1992).

-1 FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC. SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

-1 CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1'.

-1 SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOROTEIN BNELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS: PROTEIN A AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C. AND MRNA.
                                        Gaps
                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
PRT; 3010 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HCV_capsid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HCV_NS4a.
HCV_NS4b.
HCV_NS5a.
HCV_RdRP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HCV_core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HCV_NS1.
HCV_NS2.
HCV_NS3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; D11168; BAA01943.1; -.
PIR; A45573; A45573.
HSSP; P26663; 1JXP.
                                      Conservative
                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR000745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR002518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR002522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR002521;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IPR004109;
                                                                                                          1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR002868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR002166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEROPS; S29.001; -.
Query Match
Best Local Similarity
                                                                       1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                               Hepacivirus.
NCBI_TaxID=31642;
                                    10;
                                                                                                                                                                                               POLG_HCVJT
Q00269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                              POLG_HCVJT
                                    Matches
                                                                                                                                                              RESULT
                                                                                                                                                                                                δλ
```

```
between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                       MEDLINE-9220026; PubMed=1314449;
A Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.;
Chen P.J., Lin M.H., Tai K.F., Liu P.C., Lin C.J., Chen D.S.;
The Taiwanese hepatitis C virus genome: sequence determination and mapping the 5' termini of viral genomic and antigenomic RNA.";
Virology 188:102-113(1992).
L. FUNCTION: THE SMALL PROFEINS NS2A, NS2B, NS4A AND NS4B ARE
HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
C. TATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thi in Pl and Ser or Ala in Pl'.
C. SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLECCARSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
C. PROTEIN M AND GLYCOPROTEIN E. THE NUCLECCARSID IS A COMPLEX OF PROTEIN CAND MRNA.
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein [Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2 (GP68) (GP70) (NS1); Protein P7: Nonstructural protein NS2 (P21) (EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS5B (P57); Nonstructural protein NS5B (P65); Nonstructural protein NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
Hepatis C virus (isolate Taiwan) (HCV).
                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29
                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                NCBI_TaxID=31645;
      ó
                                                                                                                                                                                                                                                                                          CAPSID PROTEIN ( POTENTIAL).
MATRIX PROTEIN ( POTENTIAL).
MAJOR ENVELOPE PROTEIN E ( POTENTIAL).
MONSTRUCTURAL PROTEIN NS1/E2 ( POTENTIAL).
NON-STRUCTURAL PROTEIN NS2 ( POTENTIAL).
PROTEASE/HELICASE NS3 ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A ( POTENTIAL).
RNA-DIRECTED RNA POLYMERASE ( POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                      Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; APT-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.

INIT_MET 1 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                          CHARGE RELAY SYSTEM (BY SIMILARITY)
CHARGE RELAY SYSTEM (BY SIMILARITY)
CHARGE RELAY SYSTEM (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 55; DB 1; Length 3010; 100.0%; Pred. No. 0.15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94A1C77435D642BB CRC64;
                                                                                                                                                                                                                                                                                 CELLULAR AMINOPEPTIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
InterPro; IPR002519; HCV_env.
InterPro; IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            326573 MW;
                                           Pfam; PF01542; HCV_COTE; J. Pfam; PF01542; HCV_COTE; J. Pfam; PF01560; HCV_NS1; 1. Pfam; PF01560; HCV_NS2; 1. Pfam; PF01006; HCV_NS4; 1. Pfam; PF01006; HCV_NS4; 1. Pfam; PF01001; HCV_NS4; 1. Pfam; PF01001; HCV_NS4; 1. Pfam; PF00998; HCV_RGRP; 1. Pfam; PF00998; HCV_RGRP; 1. Pr0Dcm; PD186062; HCV_NS1; 1. SMART; SM00492; HELICC3; 1.
                                 Pfam; PF01543; HCV_capsid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SITE
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACT_SITE
NP_BIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                           ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
```

```
Pfam; PF00271; helicase_C; 1.
ProDom; PD186062; HCV_NS1; 1.
Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CELLULAR AMINOPEPTIDASE
EMBL; M84754; -; NOT_ANNOTATED_CDS.
PIR; A40244; GNWVTW.
                                                                                                                         InterPro; IPR002531; HCV_NS1.
InterPro; IPR002518; HCV_NS2.
InterPro; IPR001109; HCV_NS3.
InterPro; IPR001409; HCV_NS4.
InterPro; IPR001409; HCV_NS4b.
InterPro; IPR002166; HCV_NS5a.
InterPro; IPR002521; HCV_CAPSI.
InterPro; IPR002521; HCV_CAPSI.
InterPro; IPR002521; HCV_CAPSI.
InterPro; IPR002531; HCV_CAPSI.
InterPro; IPR002531; HCV_CAPSI.
InterPro; IPR002531; HCV_CAPSI.
                                                                                                                                                                                                                                                                                                                                                              PF01543; HCV_capsid; 1.
PF01542; HCV_core; 1.
PF01539; HCV_env; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ); PF01006; HCV_NS43; 1.

); PF01001; HCV_NS45; 1.

); PF01506; HCV_NS53; 1.

); PF00998; HCV_RGRP; 1.

); PF00271; helicase C.
                                                                                                                                                                                                                                                                                                                                                                                                                              PF01560; HCV_NS1; 1
PF01538; HCV_NS2; 1
PF02907; HCV_NS3; 1
                                                                                                        InterPro; IPR001410;
InterPro; IPR002531;
                                          HSSP; P26663; LJXP.
MEROPS; S29.001; -.
                                                                                      MEROPS;
                                                                                                                                                                                                                                                                                                                                                                    Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
```

3010 AA

STANDARD;

POLG_HCVTW P29846;

POLG_HCVTW

1807 LLFNILGGWV 1816

1 LLFNILGGWV 10

ò

Last sequence update)

01-APR-1993 (Rel. 25, Created) 01-APR-1993 (Rel. 25, Last seq

S

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation (P22);
16-OCT-2001 (Rel. 40, Last annotation (Rel. 40, Last annotation Rel. 40, La
                              MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NSJ. (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
                                                                                                                                                                             PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                          CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-91172826; PubMed-1848704; Choo Q.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C., Caloo Q.-L., Richman K.H., Han J.H., Berger K., Lee C., Dong C., Gallegos C., Coit D., Medina-Selby A., Barr P.J., Weiner A.J., Bradley D.W., Kuo G., Houghton M.; Ros G., Houghton M.; 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 55; DB 1; Length 3010; 100.0%; Pred. No. 0.15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 327047 MW; AAD267D55CDFE215 CRC64;
   CORE PROTEIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED (GLCNAC. N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 0.15;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATP (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT; 3011 AA.
                                                                                                                                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DECH BOX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                   2014

1084

11084

11084

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

11107

1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 LLFNĮLGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=11104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POLG_HCV1
P26664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                          ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                         CHAIN
                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLG_HCV1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      n; Envelope protein; Helicase; ATP-binding;
Iral protein; Hydrolase; Serine protease.
REMOVED FROM CAPSID PROTEIN C BY THE
CELLULAR AMINOPEPTIDASE.
CAPSID PROTEIN (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
MAJOR ENVELOPE PROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
PROTEASE,HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NA4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NA4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NA5A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
PIOC. Natl. Acad. Sci. U.S.A. 88:2451-2455(1991).

-1- FUNCTION: THE SMALL PROFEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBLE., SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIEAL RNA REPLICATION.

-1- CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.

-1- SUBUNIT: THE VIRION OF THIS VIRIGS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase; Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease. INIT_MET 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                    PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
ATP (POTENTIAL).
BECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                                                      SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY $29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR002868 HCV_NS5a.
InterPro; IPR002522 HCV_caps.
InterPro; IPR002521 HCV_caps.
InterPro; IPR002513 HCV_core.
InterPro; IPR002519; HCV_env.
InterPro; IPR002519; HCV_env.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01543; HCV_capsid; 1. Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_capsid; 1. Pfam; PF01550; HCV_caps; 1. Pfam; PF01560; HCV_NS2; 1. Pfam; PF01006; HCV_NS4; 1. Pfam; PF01006; HCV_NS4; 1. Pfam; PF01001; HCV_NS4b; 1. Pfam; PF0156; HCV_NS4b; 1. Pfam; PF00928; HCV_RGRP; 1. Pfam; PF00271; helicase_C; 1. Probom; PD186062; HCV_NS1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      HCV_NS1.
                                                                                                                                                                                                                                                                                                                                                     EMBL; M62321; AAA45676.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMART; SM00492; HELICc3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           729
1006
1615
1862
2013
3011
369
1108
1107
11165
11165
1237
1319
1319
                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR004109;
InterPro; IPR000745;
InterPro; IPR001490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR002518;
                                                                                                                                                                                                                                                                                                                                                                      ; A39166; GNWVC3.
                                                                                                                                                                                                                                                                                                                                                                                    HSSP; P27958; 1HEI.
MEROPS; S29.001; -.
MEROPS; U39.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           116
192
384
730
1007
1616
1863
                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACT_SITE
ACT_SITE
ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
```

9

```
InterPro; IPR001410;
InterPro; IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEROPS; S29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     384
747
810
1027
1658
1712
1973
2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3D-structure.
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
   ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-406-1992 (Rel. 23, Created)
01-406-1992 (Rel. 23, Last sequence update)
01-6-0CT-2001 (Rel. 40, Last annotation update)
66-0GT-2001 (Rel. 40, Last annotation update)
66-0GT-2001 (Rel. 40, Last annotation update)
67-0GT-2001 (Rel. 40, Last annotation update)
67-0GT-2001 (Rel. 40, Last annotation update)
67-0GT-2001 (Nal): Protein F1 (GP32) (GP35); Envelope glycoprotein E2
67-0GT-2001 (Nal): Protein F2 (Nonstructural protein NS4 (P4): Nonstructural protein NS4 (P4): Nonstructural protein NS4 (P4): Nonstructural protein NS5 (P65); Nonstructural protein NS5 (P65) (P7) (Nal): Protein NS5 (P65); Nonstructural protein NS5 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-97331322; PubMed-9187654; Xao N., Hesson T., Cable M., Hong Z., Kwong A.D., Le H.V., Weber P.C.; Yao N., Hesson T., Cable M., Hong Z., Kwong A.D., Le H.V., Weber P.C.; Structure of the hepatitis C virus RNA helicase domain."; Nat. Struct. Biol. 4:463-467(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kim J.L., Morgenstern K.A., Griffith J.P., Dwyer M.D., Thomson J.A., Murcko M.A., Lin C., Caron P.R., "Hepatitis C virus NS3 RNA helicase domain with a bound oligonucleotide: the crystal structure provides insights into the mode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: PROTEASE NS2 IS RESPONSIBLE FOR THE CLEAVAGE OF NS2-NS3.
FUNCTION: PROTEASE NS3 IS RESPONSIBLE FOR THE CLEAVAGE OF
                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                U
                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Genomic structure of the human prototype strain H of hepatitis virus: comparison with American and Japanese isolates."; Proc. Natl. Acad. Sci. U.S.A. 88:10292-10296(1991).
                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                    POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                             .;
0
                                                                                                                                                                                                                                                    (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NEDLINE-92052256; PubMed-1658800; MEDLINE-92052256; PubMed-1658800; Inchauspe G., Zebedee S., Lee D.H.H., Sugitani M., Nasoff M.,
                                                                                                                                                                                                                                                                                                                             th 100.0%; Score 55; DB 1; Length 3011; Similarity 100.0%; Pred. No. 0.15; 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS) OF 1207-1657.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 1192-1657.
MEDLINE-98154321; PubMed-9493270;
                                                                                                                                                                                                                                                                                 65F8C9447FCE5AF9
                                                                                                                                                                                                     (GLCNAC. .
                                                           (GLCNAC.
(GLCNAC.
                                                                                                                                       (GLCNAC.
                                                                                                         (GLCNAC.
                                                                                                                                                                                                                     (GLCNAC.
                                 (GLCNAC
                                                (GLCNAC
                                                                                                                                                                        (GLCNAC
                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                  (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3011 AA
                                             N-LINKED
                                N-LINKED
                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                 327197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Structure 6:89-100(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                            1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                          1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID-11108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                unwinding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Prince A.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POLG_HCVH
P27958;
                             CARBOHYD
CARBOHYD
CARBOHYD
                                                                        CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                       CARBOHYD
CARBOHYD
                                                                                                                                                                                                   CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POLG_HCVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                       a
 ð
```

```
C. 1- FUNCTION. NEAR AND STRANS AND IS ESSENTIAL FOR THE ACTIVATION OF NEST.

C. 1- FUNCTION. NEAR SERVERS A COMPLEX WITH NEST AND IS ESSENTIAL FOR THE ACTIVATION OF NEST.

C. 1- FUNCTION. NEST SERVERS TO HAVE A TRANSCHIPTIONAL ACTIVATION FOLLS.

C. 1- FUNCTION. NEST SERVERS TO HAVE A TRANSCHIPTIONAL ACTIVATION FOLLS.

C. 1- FUNCTION. NEST SERVERS TO HAVE A TRANSCHIPTIONAL ACTIVATION FOLLS.

C. 1- FUNCTION. SERVERS TO HAVE A TRANSCHIPTIONAL ACTIVATION FOLLS.

C. 1- FUNCTION. SERVERS TO HAVE A TRANSCHIPTIONAL ACTIVATION FOLLS.

C. 1- FUNCTION. THE THIRD THE ACTIVATION FOLLS.

C. 1- FUNCTION. SERVERS TO HAVE A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. SERVERS TO HAVE A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. SERVERS TO HAVE A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. THE THIRD THE ACTIVATION FOLLS.

C. 1- FUNCTION. THE THIRD THE ACTIVATION FOLLS.

C. 1- FUNCTION. THE THIRD THE ACTIVATION FOLLS.

C. 1- FUNCTION. THE STRONGHAL PROTEINS C. ELIAND FEAR PRODUCED BY A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. THE STRONGHAL PROTEINS C. ELIAND FEAR PRODUCED BY A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. THE STRONGHAL PROTEINS C. ELIAND FEAR A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. THE STRONGHAL PROTEINS C. ELIAND FEAR A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. THE STRONGHAL PROTEINS C. ELIAND FEAR A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. THE STRONGHAL PROTEINS C. ELIAND FEAR A TRANSCHIPTION FOLLS.

C. 1- FUNCTION. THE STRONGHAL PROTEINS C. ELIAND FEAR A TRANSCHIPTION FOLLS.

C. 1- FUNCTION FOLLS.

C. 1
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lutwyche P., Perez-Casal J.F., Crump E.M., Trust T.J.;
Submitted (Mar.1997) to the EMBL/Genbank/DDBA databases.
-!- FUNCTION: CLEAVES TYBE-4 FIMBRIAL LEADER SEQUENCE AND METHYLATES
THE N-TERMINAL (GENERALLY PHE) RESIDUE. PROCESSES THE TAPA PILIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pepe C.M., Strom M.S.; "Aeromonas salmonicida type IV pilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Probable).
SIMILARITY: BELONGS TO PEPTIDASE FAMILY A24; ALSO KNOWN AS TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBCELLULAR LOCATION: Integral membrane protein. Inner membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LEP4_AERSA STANDARD; PRT; 291 AA.
068964; 054483;
30-MAY-2000 (Rel. 39, Last sequence update)
30-MAY-2001 (Rel. 40, Last annotation update)
Type 4 prepilin-like proteins leader peptide processing enzyme [Includes: Leader peptidase (EC 3.4.99.-) (Prepilin peptidase); N-methyltransferase (EC 2.1.1.-)].
(BY SIMILARITY).
(BY SIMILARITY).
(BY SIMILARITY).
                                                                                                                                                                                                              (POTENTIAL).
                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                  (POTENTIAL)
                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                  POTENTIAL)
                                                                                                                                        (POTENTIAL)
                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                      Length 3011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Proteobacteria; gamma subdivision; Aeromonadaceae;
                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                      (GLCNAC. . .)
(GLCNAC. . .)
(GLCNAC. . .)
                                                                                                                                                                                                                                                                               772CBB29CCD94753
 CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
CHARGE RELAY SYSTEM
                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                       Score 55; DB 1;
Pred. No. 0.15;
                                                                                                            (GLCNAC.
                                                                                                                                                                                                            (GLCNAC.
                                                                                                                                        (GLCNAC.
                                                                                                                                                        (GLCNAC.
                                                                                                                                                                   (GLCNAC.
                                                                                               (GLCNAC.
                                            (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRECURSOR DURING MEMBRANE TRANSLOCATION.
                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                    N-LINKED
                                                                                                                                                                                                                                                                LINKED
                             CHARGE ATP (PO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                III LEADER PEPTIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                     100.0%;
ilarity 100.0%;
Conservative 0;
                                                                                                                                                                                                                                                                               327142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aeromonas salmonicida
                                                                                                                                                                                                                                                                                                                                                                                             1807 LLFNILGGWV 1816
                                                                                                                                                                                                                                                                                AA;
                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                             1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               assembly genes."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-A449;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAPD OR PILD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-A450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Aeromonas
                                                                                                                                                                                            CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
              ACT_SITE
ACT_SITE
NP_BIND
                                                                                                           CARBOHYD
CARBOHYD
                                                                                                                                      CARBOHYD
CARBOHYD
                                                                    CARBOHYD
                                                                                 CARBOHYD
                                                                                               CARBOHYD
                                                                                                                                                                   CARBOHYD
                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                LEP4_AERSA
  g
```

```
01-805-1992 (Rel. 23, Created)
01-805-1992 (Rel. 23, Last sequence update)
16-027-2001 (Rel. 40, Last annotation update)
16-027-2001 (Rel. 40, Last annotation update)
6enome polyprotein [Contains: Capsid protein C (Core protein E2)
Envelope glycoprotein E1 (GP32) (GP35); Envelope glycoprotein E2
(GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
(EC 3.4.22..); Protease/helicase NS3 (P70) (Hepacivirin)
(EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein
NS4B (PF7); Nonstructural protein NS5A (P56); Nonstructural protein
NS5B (P66) (P70) (RNA-directed RNA polymerase) (EC 2.7.7.48)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIINE-92044440; PubMed-1658196; Okanoto H., Okada S.-I., Sugiyama Y., Kurai K., Lizuka H., Machida A., Miyakawa Y., Mayumi M.; "Nucleotide sequence of the genomic RNA of hepatitis C virus isolated from a human carrier: comparison with reported isolates for conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and divergent regions.";
J. Gen. Virol. 72:2697-2704(1991).

-! Gen. Virol. 73:2697-2704(1991).

-! Gen. Virol. 73:2697-2704(1991).

-! Grow of the SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.

NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.

-! CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.

-! SUBUNIT: THE VIRION OF THIS VIROS IS A NUCLEOCAPSID OF TWO PROTEINS: PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF
                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                 Length 291;
                                                                                                               Multifunctional enzyme; Hydrolase; Protease; Transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                         4CFFA0AFC886E368 CRC64;
                                                                                                                             Inner membrane
                                                                                                                                                                                                                                                                                                                                                                                                  Score 44; DB 1;
                                                                                                                                                                                                                                                     (IN REF.
(IN REF.
(IN REF.
(IN REF.
                                                                                                                                                                                                                                                                                                                              REF.
                                                                                                                                                                                                                                                                                                                                           REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT; 3033 AA
                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 1.4;
                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                          POTENTIAL. POTENTIAL.
 send an email to license@isb-sib.ch)
                                                                                                                                                                    POTENTIAL.
                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                           POTENTIAL.
P -> A (IN
                                                                                                                                           POTENTIAL
                                                                                                                                                        POTENTIAL
                                                                  InterPro; IPR000045; Peptidase_C20.
Pfam; PF01478; Peptidase_C20; 1.
PRINTS; PR00864; PREPILNPTASE.
                                                                                                                          Methyltransferase; Transmembrane;
                            EMBL; AF059249; AAC23569.1; -.
                                                                                                                                                                                                                                                                                                                                                          Ψ.
                                                                                                                                                                                                                                                                                                                                                                                                 80.0%;
                                                                                                                                                                                                                                                                                                                                                         32500
                                                                                                                                                                                                                                                                                                                                                                                                                                8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                 131
162
186
232
263
60
60
100
100
103
253
253
AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         171 LLFNLLGGYV 180
                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11113;
                                                      MEROPS; A24.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hepacivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POLG_HCVJ6
P26660;
                                                                                                                                                                    TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                       CONFLICT
CONFLICT
CONFLICT
                                                                                                                                        TRANSMEM
                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                CONFLICT
                                                                                                                                                                                                                                                                                                CONFLICT
                                                                                                                                                                                                                                                                                                               CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 8
POLG_HCVJ6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δλ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                  CELLULAR AMINOEPTIDASE.
CARSID PROTEIN ( POTENTIAL).
MATRIX PROTEIN ( POTENTIAL).
MAJOR ENVELOPE PROTEIN E ( POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
PROTEASE/HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                          Core protein; Coat protein; Envelope protein; Helicase; ArP-binding:
Transmembrane; Nonstructural protein; Hydrolase; Serine protease.
INIT_MET 1 1 REMOVED FROM CAPSID PROTEIN C BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RNA-DIRECTED RNA POLYMERASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
PROTEIN C AND MRNA.
SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATP (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED (N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DECH BOX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
                                                                                               EMBL; D00944; BAA00792.1; -. PIR; JQ1303; JQ1303. HSSP; P27958; 1HEI.
                                                                                                                                               InterPro; IPR001410; DEAD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11111
1169
11241
1323
1323
209
209
234
305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              423
430
448
477
534
                                                                                                                           MEROPS; S29.001; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
TRANSMEM
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACT_SITE
ACT_SITE
NP_BIND
SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
CHAIN
CHAIN
CHAIN
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pepe C.M., Eklund M.W., Strom M.S.;
"Cloning of an Aeromonas hydrophila type IV pilus biogenesis gene
"Cloning of an Aeromonas hydrophila type IV pilus biogenesis gene
cluster: complementation of pilus assembly functions and
characterization of a type IV leader peptidase/N-methyltransferase
required for extracellular protein secretion.";
Mol. Microbiol. 19:857-869(1996).
-I- FUNCTION: CLEAVES TYPE-4 FIMBRIAL LEADER SEQUENCE AND METHYLATES
THE N-TERMINAL (GENERALLY PRE) RESIDUE. PROCESSES THE TAPA PILIN
PRECURSOR DURING MEMBRANE TRANSLOCATION.
-I- SUBCELLULAR LOCATION: Integral membrane protein. Inner membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Probable).
-I- SIMILARITY: BELONGS TO PEPTIDASE FAMILY A24; ALSO KNOWN AS TYPE III LEADER PEPTIDASE FAMILY.
                                                                                                                                                                                                                                                                                                              01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Type 4 prepilin-like proteins leader peptide processing enzyme fincludes: Leader peptidase (EC 3.4.99.-) (Prepilin peptidase): N-TAPD.
                              (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                        .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria; gamma subdivision; Aeromonadaceae;
                                                                                                                        1; Length 3033;
N-LINKED (GLCNAC. . .) (POTEN MW; F957F5C1A273BE9E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protease; Transferase;
                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
EA584F277041A99B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Methyltransferase; Transmembrane; Inner membrane.
TRANSMEM 14 34 POTENTIAL.
                                                                                                                        Score 44; DB 1
Pred. No. 12;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000045; Peptidase_C20.
Pfam; PF01478; Peptidase_C20; 1.
PRINTS; PR00864; PREPILNPTASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Multifunctional enzyme; Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=96417863; PubMed=8820654;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32308 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; U20255; AAC43998.1; -.
                                                                                                                        80.0%;
70.0%;
                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                              STANDARD;
627
649
1091
2038
2811
                                                                                                                                                                                                      :| ||||||:
1811 ILLNILGGWL 1820
                                                                             AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Aeromonas hydrophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130
161
185
232
261
290 AA;
                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                     1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
 627
649
1091
2038
2811
3033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEROPS; A24.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-AH65
                                                                                                                                                                                                                                                                                            LEP4_AERHY
P45794;
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Aeromonas
                                               CARBOHYD
                                                              CARBOHYD
                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                              RESULT 9
LEP4_AERHY
                                                                                                                                                     Matches
   FT
FT
FT
FT
SO
                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                              ò
```

```
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
FITAMENTAL STANDAY SEE STANDAY SEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Genome polyprotein (Contains: Capsid protein C (Core protein) (P22);
Envelope glycoprotein El (GP32) (GP35); Envelope glycoprotein E2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-K12 / MG1655;
MEDLINE-97426617; bubmed-9278503;
Blattner F.R., Plunkett G. III, Bloch C.A., Perna N.T., Burland V.,
Riley M., Collado-Vides J., Glasner J.D., Rode C.K., Mayhew G.F.,
Gregor J., Davis N.W., Kirkpatrick H.A., Goeden M.A., Rose D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SCIENCE 2//:1433-14/4(1997).
-!- SIMILARITY: BELONGS TO PEPTIDASE FAMILY A24; ALSO KNOWN AS TYPE
                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                               Length 290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mau B., Shao Y.;
"The complete genome sequence of Escherichia coli K-12.";
Science 277:1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              76.4%; Score 42; DB 1; Length 269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Indels
                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       269 AA; 29466 MW; E793FD8B4C81F6A4 CRC64;
                                                                                                                                                                                                                                                                              (Rel. 39, Created)
(Rel. 39, Last sequence update)
(Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT; 3033 AA.
                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 2.9;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch)
                                 Score 43;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; AE000379; AAC76008.1; ALT_INIT
                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peptidase_C20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; U28377; AAA69139.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF01478; Peptidase_C20; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               III LEADER PEPTIDASE FAMILY.
                                                                     2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRINTS; PR00864; PREPILNPTASE.
                               78.2%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 80.0 Matches 8; Conservative
                                                                       8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EcoGene; EG12992; pppA.
InterPro; IPR000045; Pe
                                                                                                                                                                                                                                                                                                                                     Leader peptidase pppA.
PPPA OR B2972.
                                                                                                                              170 LLFNLLGGFV 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             210 LLFAALGGWV 219
                                 Query Match
Best Local Similarity
                                                                                                          1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Complete proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                         Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=562;
                                                                                                                                                                                                                                                          Q46836;
30-MAY-2000 (
30-MAY-2000 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_HCVJ8
P26661;
                                                                                                                                                                                                                                                                                                                   16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia
                                                                                                                                                                                                                                        PPPA_ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 11
POLG_HCVJ8
                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                              qq
                                                                                                                                                                                                                                                              ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                      (EC 3.4.22.-); Protease/helicase NS3 (P70) (Hepacivirin) (EC 3.4.21.98); Nonstructural protein NS4A (P4); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P56); Nonstructural protein NS5A (P56); Nonstructural protein NS5B (P66); No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATALYTIC ACTIVITY: Hydrolysis of four peptide bonds in the viral precursor polyprotein, commonly with Asp or Glu in the P6 position, Cys or Thr in P1 and Ser or Ala in P1.
SUBUNIT: THE VIRION OF THIS VIRUS IS A NUCLEOCAPSID COVERED BY A LIPOPROTEIN ENVELOPE. THE ENVELOPE CONSISTS OF TWO PROTEINS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Core protein; Coat protein; Envelope protein; Helicase; ATP-binding; Transmembrane; Nonstructural protein; Hydrolase; Serine protease.
INIT_MET 1 TEROVED FROM CAPSID PROTEIN C BY THE CELLULAR AMINOPEPTIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProDom; PD186062; \text{HCV}_-N\overline{\text{S}1}; 1. Polyprotein; Glycoprotein; Transferase; RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROTEIN M AND GLYCOPROTEIN E. THE NUCLEOCAPSID IS A COMPLEX OF PROTEIN C AND MRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Okamoto H., Kurai K., Okada S.-I., Yamamoto K., Lizuka H., Tanaka
Fukuda S., Tsuda F., Mishiro S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Full-length sequence of a hepatitis C virus genome having poor homology to reported isolates: comparative study of four distinct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VITOLOGY 188:331-341(1992).
-!- FUNCTION: THE SMALL PROTEINS NS2A, NS2B, NS4A AND NS4B ARE HYDROPHOBIC, SUGGESTING A POSSIBLE MEMBRANE-RELATED FUNCTION.
NS3 AND NS5 MAY PLAY A ROLE IN THE VIRAL RNA REPLICATION.
GP68) (GP70) (NS1); Protein P7; Nonstructural protein NS2 (P21)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY S29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAPSID PROTEIN C (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=92230232; PubMed=1314459;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR002522; HCV_capsid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR002519; HCV_env.
IPR001650; Helicase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HCV_NS5a.
HCV_RdRP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IPR002521; HCV_core.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV_NS1.
HCV_NS2.
HCV_NS3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01543; HCV_capsid; 1. Pfam; PF01542; HCV_core; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HCV_RdRP; 1.
helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; D10988; BAA01761.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_NS5a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HCV_NS4a; 1
HCV_NS4b; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HCV_NS3; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HCV_env; 1
HCV_NS1; 1
HCV_NS2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR000745; 1
IPR001490; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR002868;
IPR002166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GNWVJ8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR002531;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1HEI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=11115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEROPS; U39.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF01538; PF02907;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PF01006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HSSP; P27958;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A40250;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; InterPro; InterPro; InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genotypes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEROPS;
```

```
·,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Type 4 prepilin like proteins leader peptide processing enzyme (Pectic enzymes secretion protein outo) [Includes: Leader peptidase (EC 3.4.99 -) (Prepilin peptidase); N-methyltransferase (EC 2.1.1.-)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lindeberg M., Collmer A.;
"Analysis of eight out genes in a cluster required for pectic enzyme secretion by Erwinia chrysanthemi: sequence comparison with secretion genes from other Gram-negative bacteria.";
J. Bacteriol. 174:7385-7397(1992).
                                          PROTEASE, HELICASE NS3 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4A (POTENTIAL).
NONSTRUCTURAL PROTEIN NS4B (POTENTIAL).
RNA-DIRECTED RNA POLYMERASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
MATRIX PROTEIN (POTENTIAL).
MAJOR ENVELOPE RROTEIN E (POTENTIAL).
NONSTRUCTURAL PROTEIN NS1 (POTENTIAL).
NONSTRUCTURAL PROTEIN NS2 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               THE N-TERMINAL (GENERALLY PHE) RESIDUE (BY SIMILARITY). SUBCELLULAR LOCATION: Integral membrane protein. Inner membrane
                                                                                                  CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
CHARGE RELAY SYSTEM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae; Pectobacterium.
                                                                                                                                                                                                                                                                                           (POTENTIAL).
                                                                                                                                                                                                                                                                                  POTENTIAL)
                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                     POTENTIAL)
                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                           POTENTIAL)
                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                     POTENTIAL)
                                                                                                                                                                                                                                                                                                                                       POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                Score 42; DB 1; Length 3033;
Pred. No. 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                 1A173E7E3381FD1A
                                                                                                                                                        N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                           (GLCNAC.
                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                          N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                 N-LINKED (GLCNAC. N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Rel. 26, Created)
(Rel. 26, Last sequence update)
(Rel. 40, Last annotation update)
                                                                                                                                     ATP (POTENTIAL).
DECH BOX.
                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                     (GLCNAC
                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        283 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                          POTENTIAL.
                                                                                                                                                                                         N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                           N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=EC16;
MEDLINE-93054355; Pubmed=1429461;
                                                                                                                                                                                                                                                                                                                                                                                                                  76.4%;
60.0%;
                                                                                                                                                                                                                                                                                                                                                                                 330177
                                                                                                                                                                                                                                                                                                                                                                                                                                        6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                               2038
2359
2811
                                                                                                                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1811 ILLNIMGGWL 1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Erwinia chrysanthemi
                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                      2811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=556;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P31711;
01-JUL-1993
01-JUL-1993
16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LEP4_ERWCH
                                                                                       TRANSMEM
ACT_SITE
                                                                                                                         ACT_SITE
NP_BIND
SITE
                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                          CARBOHYD
CARBOHYD
                                                                                                               ACT_SITE
                                                                                                                                                         CARBOHYD
                                                                                                                                                                    CARBOHYD
                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
CHAIN
CHAIN
CHAIN
                                  CHAIN
                                                                   CHAIN
                                                                              CHAIN
                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         +
 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                       entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Complete sequence analysis of the genome of the bacterium Mycoplasma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
(Probable).
SIMILARITY: BELONGS TO PEPTIDASE FAMILY A24; ALSO KNOWN AS TYPE
III LEADER PEPTIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pneumoniae.";
Nucleic Acids Res. 24:4420-4449(1996).
-!- FUNCTION: COULD ACT AS THE TRANSPORT PROTEIN FOR THE UNKNOWN
-!- SUBCELLULAR LOCATION: Integral membrane protein (Potential).
-!- SUBCELLULAR LOCATION: Integral membrane protein (Potential).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Firmicutes; Bacillus/Clostridium group; Mollicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Himmelreich R., Hilbert H., Plagens H., Pirkl E., Li B.-C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 41; DB 1; Length 283;
Pred. No. 4.5;
                                                                                                                                                                                                                             MEROPS, A24.001; -...
InterPro; IPR000045; Peptidase_C20.
InterPro; IPR000045; Peptidase_C20.
InterPro; PR00864; PREPILNPTASE.
Multifunctional enzyme; Hydrolase; Protease; Transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
90B9CE722C4AAA7E CRC64;
                                                                                                                                                                                                                                                                                                               Methyltransferase; Transmembrane; Inner membrane.
TRANSMEM 13 33 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Putative transport protein sqaT homolog.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2; Mismatches
                                                                                                                                                                                                                                                                                                                                                POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN-ATCC 29342 / M129;
MEDLINE-97105885; Pubmed-8948633;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MM;
                                                                                                                                                                                                  EMBL; L02214; AAA24841.1; -. PIR; C47755; C47755.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mycoplasmataceae; Mycoplasma.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 74.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                279
31355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SGAT OR MPN496 OR MP347.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                    33
126
148
173
196
236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mycoplasma pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |: |:||||
273 LVLNVLGGW 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLFNILGGW 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=2104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Herrmann R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SGAT_MYCPN
P75291;
                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SGAT_MYCPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
 δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P
```

```
ó
                                                                                                                                                                                                                                                                                                                                                                                                         01-WAR-1989 (Rel. 10, Created)
01-WAR-1989 (Rel. 10, Last sequence update)
01-WV-1995 (Rel. 32, Last annotation update)
Leukotriene A-4 hydrolase (EC 3.3.2.6) (LTA-4 hydrolase) (Leukotriene
                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZINC-BINDING, PEPTIDASE ACTIVITY, AND SIMILARITY TO ZINC PROTEASES MEDLINE-90365706; Pubmed-1975494;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDLINE=88007621; PubMed=3654641;
Minami M., Ohno S., Kawasaki H., Sadmark O., Samuelsson B.,
Joernvall H., Shimisu T., Seyama Y., Suzuki K.;
"Molecular cloning of a cDRA coding for human leukotriene A4
hydrolase. Complete primary structure of an enzyme involved in
eicosanoid synthesis.";
J. Biol. Chem. 262:13873-13876(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tob H., Minami M., Shimizu T.; Molecular evolution and zinc ion binding motif of leukotriene
                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
MEDLINE-88016154; PubMed-2821541;
Funk C.D., Raadmark O., Fu J.Y., Matsumoto T., Joernvall H.,
Shimizu T., Samuelsson B.;
"Molecular cloning and amino acid sequence of leukotriene A4
hydrolase.";
                                                                                                                                                                                                                                             72.7%; Score 40; DB 1; Length 660; 50.0%; Pred. No. 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZINC-BINDING, AND PEPTIDASE ACTIVITY.
MEDLINE-91058588; PubMed-2244921;
Haeggstroem J.Z., Wetterholm A., Shapiro R., Vallee B.L.,
                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                           AA45EC672921BAA8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Leukotriene A4 hydrolase: a zinc metalloenzyme.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Proc. Natl. Acad. Sci. U.S.A. 84:6677-6681(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biochem. Biophys. Res. Commun. 171:216-221(1990)
                         proteome
                                                                                                                                                                                                                                                                                                                                                                                   610 AA
                                                                                                                                                                                                                                                         Pred. No. 15;
4; Mismatches
                                                                      POTENTIAL. POTENTIAL.
                                                                                              POTENTIAL. POTENTIAL.
                                                POTENTIAL
                                                            POTENTIAL
                                                                                                                       POTENTIAL.
                                                                                                                                  POTENTIAL.
                                                                                                                                               POTENTIAL
                                   POTENTIAL
                                                                                                                                                           POTENTIAL
                                                                                                                                                                         POTENTIAL
                                                                                                                                                                                    POTENTIAL
                                                                                                                                                                                                POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                         Complete
                                                                                                                                                                                                           '0858 MW;
           EMBL; AE000033; AAB95995.1;
                                                                                                                                                                                                                                                                      4; Conservative
                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                              244
3327
4421
442
500
500
                                                                                                                                                                                            615
660 AA;
                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                             :|::|||:
612 YNVIGGWI 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                          A(4) hydrolase).
LTA4H OR LTA4.
                                                                                                                                                                                                                                                                                               3 FNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9606;
                                     14
74
98
1162
124
224
3362
401
422
480
592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Samuelsson B.;
                                                                                                                                                                                                                                                                                                                                                                                 LKHA_HUMAN
P09960;
                         Fransport;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hydrolase.
                                                                     TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                       TRANSMEM
TRANSMEM
TRANSMEM
                                               TRANSMEM
TRANSMEM
                                                                                                                                                         TRANSMEM
TRANSMEM
                                                                                                                                              FRANSMEM
                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                               Query Match
                                   FRANSMEM
                                                                                                                                                                                             FRANSMEM
                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                          RESULT 14
LKHA_HUMAN
                                                                                                                                                                                                                                                                     Matches
qq
                                                                                                                                                                                                                                                                                                                                                                                              õ
```

```
MUTAGENESIS OF GLU-296.

MEDLINE=93028420; PubMed=1357660;

MEDLINE=93028420; PubMed=1357660;

MAY WELLANDIAM A., Medlina J.F., Raadmark O., Shapiro R., Haeggstroem J.Z.,

Nate B.L., Samuelsson B.;

"Leukotriene A4 hydrolase: abrogation of the peptidase activity by

mutation of glutamic acid-296.";

Proc. Natl. Acad. Sci. U.S.A. 89:9141-915(1992).

THE ENZYME ALSO HAS SOME PEPTIDASE ACTIVITY.

THE ENZYME ALSO HAS SOME PEPTIDASE ACTIVITY.

C.-CATALYTICA CATIVITY: (7E.9E.11Z,142)-(5S.6S)-5,6-epoxylcosa-
7,9,11.14-tetraenoate + H(2)0 = (62.8E.10E.14Z)-(5S.12R)-5,12-
dihydroxylcosa-6,8,10,14-tetraenoate.

C.-COFACTOR: BINDS 1 ZINC ION.

C.-COFACTOR: BINDS 1 ZINC ION.

C.-COFACTOR: DATHEN STEP IN THE BIOSYNTHESIS OF LEUKOTRIENES.

C.-COFACTOR: BLONGS TO PEPTIDASE FAMILY M1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                            Medina J.F., Wetterholm A., Raadmark O., Shapiro R., Haeggstroem J.Z., Vallee B.L., Samuelsson B.;
"Leukotriene A4 hydrolase: determination of the three zinc-binding
                                                                                                                                                                                     Minami M., Bito H., Ohishi N., Tsuge H., Miyano M., Mori M., Wada H., Mutoh H., Shimada S., Izumi T., Abe K., Shimuzu T.; "Leukortriene A4 hydrolase, a bifunctional enzyme. Distinction of leukotriene A4 hydrolase and aminopeptidase activities by site-directed mutagenesis at Glu-297.";
                                                                                                         ligands by site-directed mutagenesis and zinc analysis.";
Proc. Natl. Acad. Sci. U.S.A. 88:7620-7624(1991).
Biochem. Biophys. Res. Commun. 172:965-970(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR001930; Aladiptase.
InterPro; IPR000130; Zn_MTpeptdse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOINED.
JOINED.
JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOINED.
JOINED.
JOINED.
JOINED.
                                             MEDLINE=91352040; PubMed=1881903;
                                                                                                                                                                          MEDLINE=92387388; PubMed=1516710;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01433; Peptidase_Mī; 1.
PRINTS; PR00756; ALADIPTASE.
                                                                                                                                                                                                                                                                       FEBS Lett. 309:353-357(1992).
                               MUTAGENESIS OF ZINC-LIGANDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        027279; AAA89077.1; U
027280; AAA89077.1; U
027281; AAA89077.1; U
027282; AAA89077.1; U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; U27293; AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U27275; AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U27285; AAA89077.1;
U27286; AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAA89077.1;
AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U27291; AAA89077.1;
U27292; AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U27276; AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U27278; AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAA89077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; J03459; AAA36176.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J02959; AAA36177.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAA89077.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAA89077.1
                                                                                                                                                           MUTAGENESIS OF GLU-296.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR; A27415; A27415.
PIR; A33886; A33886.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEROPS; M01.004; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; U27287; A
EMBL; U27288; A
EMBL; U27289; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U27284;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its muse by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Herrmann R.; "Complete sequence analysis of the genome of the bacterium Mycoplasma
                                                                                                                                                                                                                                                                                              LOOSE AMINOPEPTIDASE ACTIVITY, BUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                      Multifunctional enzyme; Hydrolase; Leukotriene biosynthesis; Zinc; Metalloprotease.

INIT, MET

BINDING

BINDIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic Acids Res. 24:4420-4449(1996).
-!- SUBCELLULAR LOCATION: Integral membrane protein (Potential).
                                                                                                                                                                          ZINC (CATALYTIC).
ZINC (CATALYTIC).
ZING (CATALYTIC).
PROTON DONOR (POTENTIAL).
H->Y: COMPLETE LOSS OF ACTIVITY.
E->Q: LOOSE AMINOPEPTIDASE ACTIVIT
E->A: LOOSE BOTH ACTIVITIES.
H->L: COMPLETE LOSS OF ACTIVITY.
E->A: COMPLETE LOSS OF ACTIVITY.
E->A: COMPLETE LOSS OF ACTIVITY.
E->A: COMPLETE LOSS OF ACTIVITY.
W; 5A69EE8505EC3382 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mycoplasma pneumoniae.
Bacteria; Firmicutes; Bacillus/Clostridium group; Mollicutes;
Mycoplasmataceae; Mycoplasma.
NCBI_TaxID=2104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
STRAIN-ATCC 29342 / M129;
MEDLINE-97105885; Pubmed-8948633;
Himmelrelch R., Hilbert H., Plagens H., Pirkl E., Li B.-C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1; Length 610; 30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67.3%; Score 37; DB 1; Length 130; 70.0%; Pred. No. 11; Live 1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hypothetical protein; Transmembrane; Complete proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
CCF7F807EB9968D7 CRC64;
                                                                                                     SUBSTRATE (POTENTIAL).
ZINC (CATALYTIC).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YB12_MYCPN STANDARD; PRT; 130 AA. P75450; CCT-2001 (Rel. 40, Last sequence update) 16-0CT-2001 (Rel. 40, Last annotation update) 16-0CT-2001 (Rel. 40, Last annotation update) Hypochetical protein MPN112 (CO9_orf130b). MPN112 OR MP042.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69.1%; Score 38; 85.7%; Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
PROSITE; PS00142; ZINC_PROTEASE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; AE000005; AAB95690.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14729 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        69154 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 85.7
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 70.0
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34
73
107
130 AA;
                                                                                                                                                                                                                                                                                                                                             296
296
299
318
610 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             340 FNALGGW 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 FNILGGW 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pneumoniae."
                                                                                                                                                       ACT_SITE
METAL
                                                                                                                                                                                                         METAL
ACT_SITE
MUTAGEN
MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                      MUTAGEN
MUTAGEN
MUTAGEN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FRANSMEM
                                                                                                                                                                                                                                                                                                                                                MUTAGEN
                                                                                                                                 METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
YB12_MYCPN
q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
Search completed: August 23, 2002, 09:55:27 Job time: 57 sec
             ||| | |||:
83 LLFYIPGGWL 92
                      g
ŏ
```

1 LLFNILGGWV 10

THIS PAGE BLANK (USPTO)

P90411 P90412 P90412 P90414 P90416 P90416 P90420 P90420 P90422 P90422 P90422 P90422 P90422 P90422 P90428 P9

hepatitis

hepatitis hepatitis hepatitis hepatitis hepatitis

protein

Run on: ĕΟ

Sequence:

Title: Perfect s

Searched:

Minimum D Maximum D

Database

```
STRAINFFACTOR 8 CONCENTRATE 68811;
MEDLINE-97201623; PUBMed-9049409;
Devereux H.L., Brown D., Dabheiko G.M., Emery V.C., Lee C.A.;
Long-term evolution of the 5'UTR and a region of NS4 containing a CTL e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78583-590(1997).
EMBL: 284294; CAB06346.1;
InterPro: IPRO00745; HCV_NS4a.
InterPro: IPRO00745; HCV_NS4a.
SPÉTAN: A 166 MW; 378B3A670EID55BE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.0%; Score 55; DB 12; Length 41; Best Local Similarity 100.0%; Pred. No. 0.0079; Matches 10; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                       Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                           ALIGNMENTS
P904110
P904111
P904111
P904113
P904113
P90415
P90415
P90416
P90420
P90420
P90422
P90422
P90422
P90422
P90428
P90428
P90428
P90428
P90428
P90438
P90438
                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                   011845
011845;
01-010-1997 (Tremblrel. 04, Ct
01-JUL-1997 (Tremblrel. 04, Lt
01-DEC-2001 (Tremblrel. 19, Lt
NS4 PROTEIN (FRAGMENT).
1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
P87842
                                                                                                                                                                                                                                                                                                              011845
                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  011845 hepatitis c
P87843 hepatitis c
P87844 hepatitis c
P87874 hepatitis c
P87870 hepatitis c
P87871 hepatitis c
P87871 hepatitis c
P90404 hepatitis c
P90405 hepatitis c
P90406 hepatitis c
P90406 hepatitis c
P90408 hepatitis c
P90408 hepatitis c
P90408 hepatitis c
P90408 hepatitis c
                                                        August 23, 2002, 10:22:01; Search time 139.83 Seconds (without alignments) 12.372 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
       GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                        562222 segs, 172994929 residues
                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

    protein search, using sw model

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          011845
P87842
P87843
P87845
P87845
P87871
P87871
P87871
P90404
P90405
P90405
P90406
P90408
                                                                                                                               BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                sp_fungi:*
sp_human:*
sp_invertebrate:*
sp_mammal:*
sp_mns:*
sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                 sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                          sp_vertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                   sp_bacteriap:*
                                                                                                                                                                                            length: 0
length: 2000000000
                                                                                                                                                                                                                                                                sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                             sp_plant:*
sp_rodent:*
sp_virus:*
                                                                                             US-08-854-825-35
55
                                                                                                                                                                                                                                                                                                                                                                                                             sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                            sp_rvirus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                        SPTREMBL_19:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
                                                                                                    score:
                                                                                                                                                                                           DB sed DB sed
                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
```

ö

Gaps

```
1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus
                                                                                                                                                                                                                                                           NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=11103;
                                                                                                                                                                                                                                               Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
SEQUENCE
                                                             P87844
P87844;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P87845;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P87845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                      RESULT
P87844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
P87845
                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SO OC 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAILN-FACTOR 8 CONCENTRATE 6681;
MEDLINE-97201623; Pubmed-9049408,
Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
Long-term evolution of the 5'UTR and a region of NS4 containing a CTL
e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).
EMBL: 284290; CAB06342.1;
InterPro; IPR000745; HCV_NS4a.
Pfam; PF01006; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a CTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                    VIruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

STRAIN-FACTOR 8 CONCENTRATE 6681;
MEDLINE-97201623; PubMed-9049409;
MEDLINE-97201623; PubMed-9049409;
Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
Long-term evolution of the 5'UTR and a region of NS4 containing e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).

EMBL; 284201; CAB06343.1.;
InterPro; IPR000745; HCV_NS4a.
Penn; PF01006; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 55; DB 12; Length 44; 100.0%; Pred. No. 0.0085; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44 AA; 4387 MW; 79FD55078233F79E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER 44 44
SEQUENCE 44 AA; 4387 MW; 79FD55078233F79E CRC64;
                                                             Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 55; DB 12;
100.0%; Pred. No. 0.0085;
Live 0; Mismatches 0;
    44 AA.
                                           Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          987843;
01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last seq
01-DEC-2001 (TrEMBLrel. 19, Last ann
NS4 PROTEIN (FRAGMENT).
  PRT;
                                       01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 03, 01-DEC-2001 (TrEMBLrel. 19, NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 100.
Matches 10; Conservative
    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 LLFNILGGWV 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 LLFNILGGWV 10
                                                                                                                                        Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       111111111
18 LLFNILGGWV 27
                                                                                                                                                                                                    NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                         NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
P87842
P87842;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P87843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
P87843
ID P8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
STRAINE-RACOR 8 CONCENTRATE 6681;
MEDLINE-97201623; PubMed-9049409;
Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
Long-term evolution of the 5'UTR and a region of NS4 containing a CTL
e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).
EMBL: Z84292; CAB06334.1;
InterPro: IPR000745; HCV_NS4a.
Pfam: PF01006; HCV_NS4a: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-FACTOR 8 CONCENTRATE 68811;
SETAIN-FACTOR 8 CONCENTRATE 68811;
MEDLINE-97201623; PubMed-9044409;
MEDLINE-97201623; PubMed-9044409;
Thoogreew H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
Thoogreew H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
Thoogreew H.L., Brown D., Low T.R. and a region of NS4 containing a CTL e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).
ENBL: 284293; CAB06345.1; ...
InterPro; IPRO00745; HCV_NS4a.
Fram: PF01006; HCV_NS4a: 1.
NON_TER 4 4
NON_TER 4 4
SEQUENCE 44 AA; 4387 MW; 79FD55078233F79E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                         Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 55; DB 12; Length 44; 100.0%; Pred. No. 0.0085; Pred. No. 0. nost
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44 44
44 AA; 4357 MW; 79FD551A34E8879E CRC64;
                                                                              Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 55; DB 12;
100.0%; Pred. No. 0.0085;
tive 0; Mismatches 0;
  44 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Æ.
                                                       Created)
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                 01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 03, 01-DEC-2001 (TrEMBLrel. 19, NS4 PROTEIN (FRAGMENT).
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
```

3

ö

Gaps

ö

Indels

```
44 AA; 4351 MW; 79FD55078B3A670E CRC64;
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel. 03, C
(TrEMBLrel. 03, I
(TrEMBLrel. 19, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF01006; HCV_NS4a; 1.

NON_TER 1 1

NON_TER 44 44

SEQUENCE 44 AA; 4351 MW;
                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 100.
Matches 10; Conservative
 10; Conservative
                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAY-1997 (TrEMBLrel. 01-DEC-2001 (TrEMBLrel. NS4 PROTEIN (FRAGMENT).
                    1 LLFNILGGWV 10
                                      27
                                                                                                                                                                                                                                                                                                                                                                                                                  1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                              18 LLFNILGGWV 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus.
                                                                                                                                                                                              NCBI_TaxID=11103;
                                LLFNILGGWV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P90404
P90404;
                                                                                         P87872
P87872;
 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6
                                        18
                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P90404
                                                                                 P87872
                     ò
                                      qq
                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                 Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
"Long-term evolution of the 5'UTR and a region of NS4 containing a CTL
e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).
EMBL, 284319, CAB06371.1;
InterPro; IPR000745; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
"Long-term evolution of the 5'UTR and a region of NS4 containing a CTL e-pitcope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).
EMBL: 284320; CAB06372.1;
InterPro: IPR000745; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                           100.0%; Score 55; DB 12; Length 44; 100.0%; Pred. No. 0.0085; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 55; DB 12; Length 44; Pred. No. 0.0085;
                                                                                                                                                                                                                                                                                                             44 AA; 4305 MW; 79EC1107981B550E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44 AA; 4305 MW; 79EC1107981B550E CRC64;
                                                                                          Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                            44 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            44 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                Created)
                                                           PRT;
                                                                                                                                                                                 SEQUENCE FROM N.A.
STRAIN-PATIENT 1, 1982;
MEDLINE-97201623; Pubmed-9049409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-PATIENT 1, 1982;
MEDLINE-97201623; PubMed-9049409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
100.0%;
                                                                              (TrEMBLrel. 03, C
(TrEMBLrel. 03, I
(TrEMBLrel. 19, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 19, 01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                         Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                             01-MAY-1997 (TrEMBLrel. 01-MAY-1997 (TrEMBLrel. 01-DEC-2001 (TrEMBLrel. NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NS4 PROTEIN (FRAGMENT
18 LLFNILGGWV 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                    1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                             NCBI_TaxID=11103;
                                                                                                                                  Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                    NON_TER
SEQUENCE
                                                          P87870
P87870;
                                                                                                                                                                                                                                                                                        NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                         P87871
                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                     7
                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
P87871
                                                 P87870
         Q
                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                       QQ
```

```
;;
                                                                                                                                                                                                                                                                                                                                                                   STRAIN=PATIENT 1. 1982;
MEDLINE=97201623; PubMed=9049409;
MEDLINE=97201623; PubMed=9049409;
Devereux H.L., Brown D., Dushelko G.M., Emery V.C., Lee C.A.;
Long-term evolution of the 5'UTR and a region of N84 containing a CTL e pitope of hepatitis C virus in two haemophilic patients.";
EMBL; 284321; CAB06373-1; -..
InterPro; IPR000745; HCV.N84a.
Ffam; PF01006; HCV_N84a; 1.
NON_TER 1 4 4
SEQUENCE 44 AA; 4305 MW; 79EC1107991B550E CRC64:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-PATTERT 1, 1983;
MEDLINE-97201623; PubMed-9049409;
MEDLINE-97201623; PubMed-9049409;
Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
"Long-term evolution of the 5'UTR and a region of NS4 containing a CTL e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. VIRO. 79:583-590(1997).
EMBL: 284323; CAB06375-11;
InterPro; IPR000745; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                      Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 55; DB 12; Length 44; 100.0%; Pred. No. 0.0085;
                            01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
44 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
```

```
1 LLFNILGGWV 10
                                                                                        1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1111111111
18 LLFNILGGWV 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus.
                                                                                                                                                                                                                     Hepatitis C virus
                                                                                                                                                                                                                                               NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=11103;
NON_TER
SEQUENCE
                                                                                                                                                P90406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P90407
P90407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
P90407
                                                                                                                             RESULT 12
                                                                                                                                        P90406
FT
                                                                              ò
                                                                                                Q
                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                             ö
                                                                                                                                                                                                                                                                                                                                                                                                             ő
                                                                                                                                                                                                                                            SEQUENCE ROWN 1. 1983;
MEDLINE-97201623; PubMed-9049409;
MEDLINE-97201623; PubMed-9049409;
Devereux H.L., Brown D., Dushelko G.M., Emery V.C., Lee C.A.;
Long-term evolution of the 5'UTR and a region of NS4 containing a CTL
Gen. Virol. 78:583-590(1997).
EMBL; Z84324; CAB06376-1;
Interpro: IPR000745; M.Y. MS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SETAIN-PATIENT 1, 1983;
STRAIN-PATIENT 1, 1983;
MEDLINE-97201623; PubMed-9049409;
MEDLINE-97201623; PubMed-9049409;
Devereux H.L., Brown D., Dushelko G.M., Emery V.C., Lee C.A.;
Long-term evolution of the 5'UTR and a region of NS4 containing a CTL
e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).
EMBL; Z84325; CAB06377.1;
TinterPro; IRN00745; HCV_NS4a.
Pfam; PF01006; HCV_NS4a; 1.
                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus. NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                             .
0
                                                                                                                                                                                                                                                                                                                                                                                                             ó
          Length 44;
                                                                                                                                                                                                                                                                                                                                                                                         Length 44;
                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                            44 AA; 4321 MW; 79FD491A4AFA670E CRC64;
                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
        100.0%; Score 55; DB 12; 100.0%; Pred. No. 0.0085;
                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 55; DB 12;
100.0%; Pred. No. 0.0085;
Live 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44 AA.
                            0; Mismatches
                                                                                                                    44
                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P90405;
01-MAY-1997 (TrEMBLrel. 03, C1
01-MAY-1997 (TrEMBLrel. 03, L2
01-DEC-2001 (TrEMBLrel. 19, L5
NS4 PROTEIN (FRAGMENT).
                                                                                                                                     01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 03, 01-DEC-2001 (TrEMBLrel. 19, NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                              Pfam; PF01006; HCV_NS4a; 1.
      Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100.
                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                               1 LLFNILGGWV 10
                                                          111111111
18 LLFNILGGWV 27
                                                                                                                                                                                                                                                                                                                                                                                                                               1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                          18 LLFNILGGWV 27
                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                       Hepatitis C virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=11103;
                                                                                                                P87874 P87874; 01-MAY-1997 (01-MAY-1997 (01-DEC-2001)
                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                        NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P90405
                                                                                                RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P90405
                                                                                                          P87874
                                                                g
                                                ð
                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-PATIENT 1, 1983;
MEDLINE-97201623; PubMed-9049409;
Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
Devereux H.L., Brown D., Parkeiko G.M., Emery V.C., Lee C.A.;
Tong-term evolution of the S.TyrR and a region of N4 containing a CTL e-pitope of hepatitis C virus in two haemophilic patients.";
Gen. Virol. 78:583-590(1997).
EMBL; 284326; CAB06378-1; -.
InterPro; IPRO00745; HCV_NS4a.
Pfam; PF01006; HCV_NS4a: 1
NON_TER 4 4
NON_TER 44
SEQUENCE 44 AA; 4351 MW; 79FD55078B3A670E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=PATIENT 1, 1984;

MEDLINE=97201623; PubMed=9049409;

DEVETUR H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;

Long-term evolution of the 5'UTR and a region of NS4 containing a CTL

e phtopp of hepatitis C virus in two haemophilic patients.";

Gen. Virol. 78:583-590(1997).

EMBL; Z84327; CAB06379.1;
                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae; Hepacivirus.
                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                               100.0%; Score 55; DB 12; Length 44; 100.0%; Pred. No. 0.0085; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 100.0%; Score 55; DB 12; Length 44; Best Local Similarity 100.0%; Pred. No. 0.0085; Matches 10; Conservative 0; Mismatches 0; Indels
44 44 AA; 4351 MW; 79FD55078B3A670E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAY-1997 (TrEMBLrel. 03, Created)
1-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY 1997 (TremBlrel. 03, 01-MAY 1997 (TremBlrel. 03, 01-DEC-2001 (TremBlrel. 19, NS4 PROTEIN (FRAGMENT).
                                                                                                               Query Match 100.
Best Local Similarity 100.
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
```

us-08-854-825-35.rspt

•

```
RT
DR
DR
DR
FT
SQ
                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                               ΩD
                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Devereux H.L., Brown D., Dusheiko G.M., Emery V.C., Lee C.A.;
"Long-term evolution of the 5'0TR and a region of NS4 containing a CTL
e epitope of hepatitis C virus in two haemophilic patients.";
J. Gen. Virol. 78:583-590(1997).
BMBL: 284328; ASB080.1;
InterPro; IPR000745; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN-PATIENT 1, 1984;
MEDLINE-97201623; PubMed-9049409;
Devereux H.L., Brown D., Dushekko G.M., Emery V.C., Lee C.A.;
"Long-term evolution of the 5'UTR and a region of NS4 containing a CTL
                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hepatitis C virus.
Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
Hepacivirus.
                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                        100.0%; Score 55; DB 12; Length 44; 100.0%; Pred. No. 0.0085;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 44;
                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                              44 AA; 4351 MW; 79FD55078B3A670E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER 1 1
NON_TER 44 44
SEQUENCE 44 AA; 4381 MW; 79FD55078B26170E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 55; DB 12;
100.0%; Pred. No. 0.0085;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            44 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44 AA.
                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-PATIENT 1, 1984;
MEDLINE-97201623; PubMed-9049409;
InterPro; IPR000745; HCV_NS4a.
                                                                                                                                                                                                                                                                                                                                                                                                                                               P87875 PRELIMINARY;
P87875;
O1-MAY-1997 (TrEMBLrel. 03, Cr
O1-MAY-1997 (TrEMBLrel. 03, La
O1-DEC-2001 (TrEMBLrel. 19, La
NS4 PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel. 03, 07 (TrEMBLrel. 03, 11 (TrEMBLrel. 19, 11
                  Pfam; PF01006; HCV_NG4a; 1.

NON_TER 1 1

NON_TER 44 44

SEQUENCE 44 AA; 4351 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P90408;
01-MAY-1997 (TrEMBLrel. 0
01-MAY-1997 (TrEMBLrel. 0
01-DEC-2001 (TrEMBLrel. 1
NS4 PROTEIN (FRAGMENT).
NS4.
                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                        Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                            1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                         18 LLFNILGGWV 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 LLFNILGGWV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1111111111
18 LLFNILGGWV 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hepatitis C virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=11103;
                                                                                                                                                                                                                                                                                                                                                                                             RESULT 14
P87875
LD P87875
DD P87875
DT 01-MAY
DT 01-DEC
DE NS4 PR(
GN HQ4L1
OC VITUSE1
OC VITUSE1
OC NC HCPACI
OC NC HCAC
OC N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P90408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
P90408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
SO FF PR
                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

ó

us-08-854-825-35.rspt